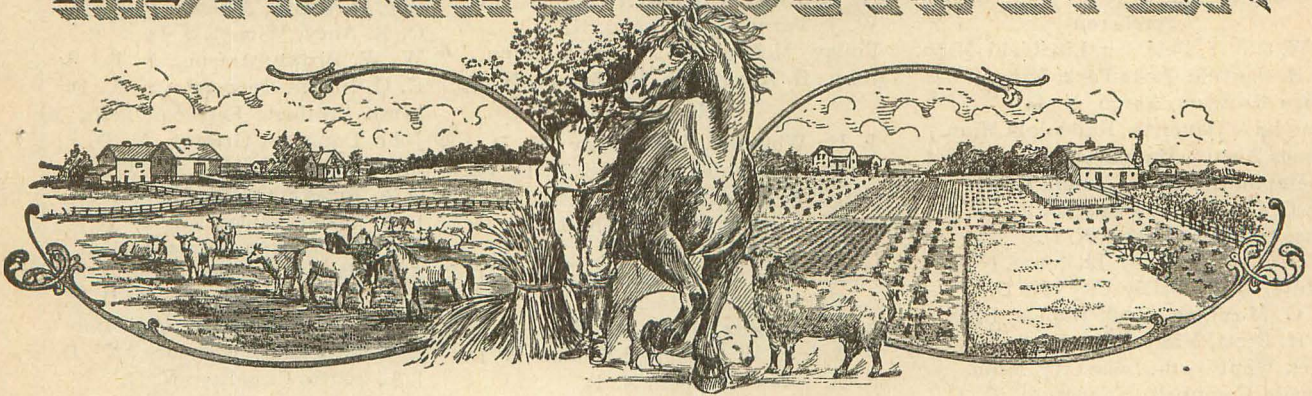


THE NORTH DAKOTA FARMER



"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 9, No. 8
LISBON, N. D.

FEBRUARY 15, 1908

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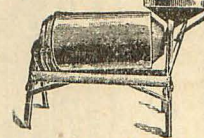
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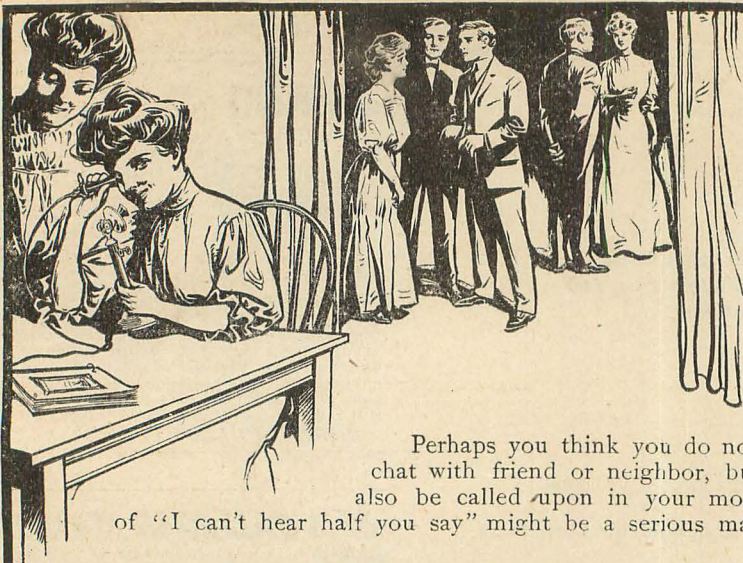
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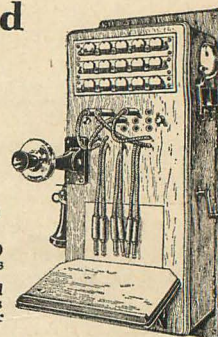
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THE NORTH DAKOTA FARMER

Vol. 9, No. 8

LISBON and FARGO, N. D., FEBRUARY 15, 1908

50 Cents a Year

MY EUROPEAN TRIP

By PRES. J. H. WORST, N. D. A. C.

THE DRAINAGE SYSTEM OF HOLLAND

Holland is a land of ditches and canals. All the villages and cities of that kingdom are connected by a network of canals that serve for purposes of drainage and transportation. Motor boats run swiftly from village to village and from city to city, carrying passengers

rounded by its separate dyke and each having its individual drainage system. These polders vary in size from a few thousand acres to many square miles. The land within the dykes which constitute any particular polder is practically on a dead level. The polders nearest the sea, especially of north Holland are of comparatively recent



"Motor boats run swiftly from village to village."

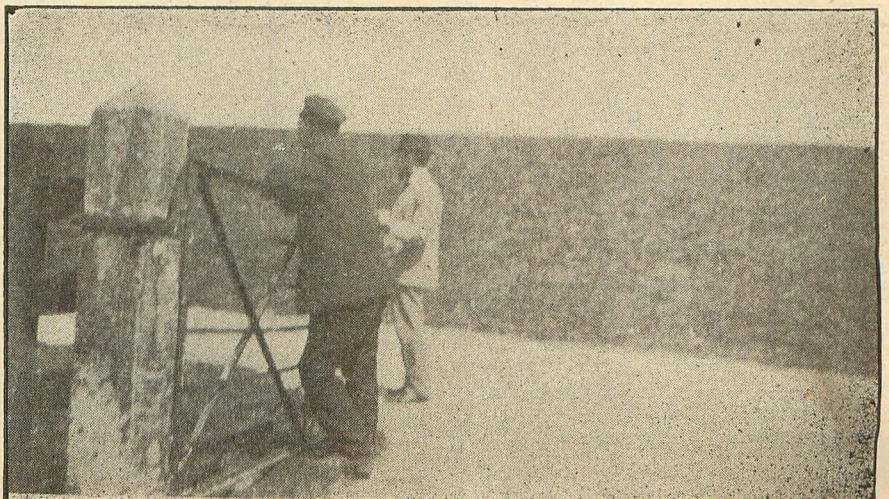
freight and express matter, while canal boats drawn by horses or by men—occasionally by women—carry all kinds of country produce to market. Small canals lead into the larger ones and the latter connect with the rivers or with the sea. Locks and automatic gates protect the country from inundation on account of the ocean tides.

A polder is an area of country surrounded by a dyke. These dykes average fifteen feet high and about sixty feet wide at their base. Where canals cut thru the dykes next to the sea gates are constructed to admit of vessels passing in and out and safeguards also are provided where they cut thru interior dykes to prevent inundation in case of high tides.

Holland is practically made up of a vast system of polders, reclaimed from the sea at different periods, each sur-

rounded by its separate dyke and each having its individual drainage system. These polders vary in size from a few thousand acres to many square miles. The land within the dykes which constitute any particular polder is practically on a dead level. The polders nearest the sea, especially of north Holland are of comparatively recent construction, the land having been reclaimed from the sea, in some instances within fifty years, or less. Some, as on the island of Overflaakee, are a thousand years old. Beyond the outer dykes the sediment still gathers and when the sea is at low tide vast mud flats stretch miles to seaward. In course of time these mud flats, slowly rising, will be surrounded by dykes and new polders will be formed. In this way much of Holland was reclaimed from the ocean and more and more land will be reclaimed in the centuries to come.

A large portion of Holland, lying as it does below the waters of the surrounding seas at high, or even at medium tide, and considerable portions lying even below low tide made it necessary to provide a unique system of drainage for the different polders. As a rule one or more canals have been dug thru each polder. Open ditches are dug at right angles to these canals, which serve to drain the surface water—the result of rainfall—into the canals. These ditches average about four feet wide and three and one-half feet deep, are V shaped and are dug at intervals of sixty feet. Where the polder is used for general farming, one and one-half inch tile are laid at right angles to the ditches, the tile entering near the bottom of the ditches. These tile are laid thirty feet apart and about three feet below the surface of the



"A large portion of Holland lying as it does below the waters of surrounding seas."

ground. The canal into which all these ditches empty is connected with the sea, as afore-mentioned, by a lock or automatic gate. When the tide is down and the mouth of the canal is above sea level the water flows out into the sea. When the tide rises above the mouth of the canal, the weight of the sea water closes the gate and the drainage water accumulates within the canal until the tide goes down again. The tide rising

centuries this work of building dykes and digging ditches and canals has been going on. The rivers that flow thru Holland and the large canals that have been constructed for transportation purposes are all dyked in so that their waters flow out into the sea instead of overflowing the country at intervals as the Rhine, the Maas and Skeld did in the earlier ages.

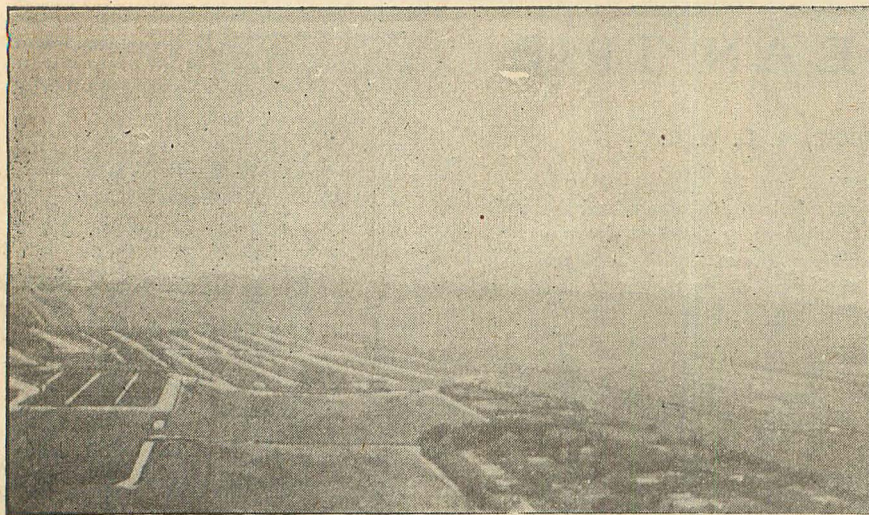
With an open ditch every sixty feet

products, the water is permitted to stand in the ditches at sufficient depth to afford the amount of moisture needed to produce the best results. But should the land be devoted to cereals and root crops the water is gradually lowered in the ditches, as the season advances and the roots strike deeper into the soil, until toward harvest time when they are pumped, or permitted to run dry. On the other hand, in case of drought, (which seldom occurs,) the water is as easily turned from the river into the canals and the ditches permitted to fill up, thus watering the land by sub-surface irrigation.

When the ditches are full of water farmers often haul their hay from the fields to their homes or manure to the fields in long narrow boats. Boats also are used to convey sugar beets or potatoes to the factory to be converted into sugar or into starch. During winter when the waters are frozen the Hollanders travel extensively on skates. Skating, in fact, is a national pastime with the Dutch.

After spending a season in Holland, the successful drainage of the Red River Valley resolves itself into a very simple proposition: open ditches, plenty of them and at the right place.

It will require a vast expenditure of money and labor, but the returns will amply justify the expense. Doubtless a large amount of tiling also will ultimately enter into the scheme for draining the Valley. Surely the Red River is a milder proposition to deal with than



"Open ditches are dug at right angles to these canals."

and falling twice in twenty-four hours affords good drainage facilities for all lands situated above medium tide. There are large areas, however, that lie below medium, and considerable areas below low tide. Where such conditions prevail, the dyke enclosing the polder is made wider, with a canal on top, fifteen or more feet above the polders below. A large ditch or canal is dug just inside the dyke into which the lateral ditches empty, and the water is pumped from the lower canal into the elevated canal, the latter connecting with the sea the same as those already described. The pumping is done with the usual four-winged Dutch windmills.

A few auxiliary steam pumps, however, have been constructed within recent years, where a large amount of water must be disposed of. This, in brief, is a description of the drainage system of Holland. It will be seen at a glance that the Hollanders have absolute control of the water, but that without an elaborate system of drainage the country would be worthless for agricultural purposes. Moreover, their system of dykes, canals and drainage ditches is expensive. No people on earth have expended so much money and labor to free their country from the tyranny of the ocean. Having robbed the sea of its bed they have to safeguard their captured homes at tremendous expense, both on account of sea water without and rain water within. For

and the spaces between them tiled every thirty feet, the water in these low lands is handled with ease.

Where dairying is the chief industry and hay and pasture, the principal



"The pumping is done with the usual four winged Dutch windmill."

the ocean, especially so when it only menaces the country for a few weeks in the early springtime.

If the Dutch owned the Red River Valley and were to transfer their methods of drainage and also their indomitable energy and patience to this section, they would resort at once to building

sitions, and many of them to reclaim land far inferior to the soil of this Valley. But leaving out the question of what the Dutch would do, the question remains: what should we do?

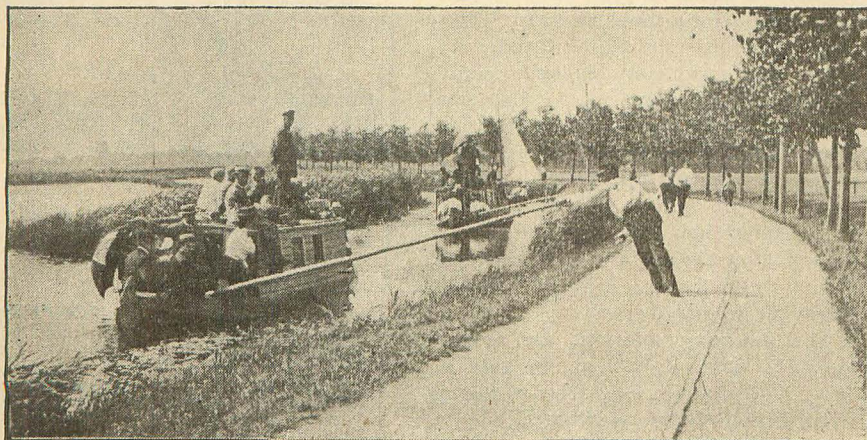
In Holland the land was originally a mud flat and is, consequently, as level as the sea. The Red River Valley in-

should be made to lower the water table at least two or three feet. Wide deep ditches should be dug at frequent intervals to act as main drainage canals, with plenty of small lateral ditches to carry the water from the fields into these large canals. A row of golden Russian willows should be planted thickly on either side of the large ditches to protect them from the drifting dirt. From the main canals, which should be quite deep, drain tile could no doubt be extended both ways to great advantage. These ditches would interfere, as a matter of course, with the present extensive and wasteful system of farming and it would, in addition, cost a mint of money to construct them. However, it is that or too much water. Even in comparatively dry years the yield of crops would be greatly increased by under drainage, while in wet years—we know what happens in wet years. Weeds, disappointment and a puddled soil. Loss of labor and seed.

Ditches, dykes and tile will some day work miracles in the Red River Valley. Mark the prophecy.

The pressure of population may not seem to fully warrant the necessary expenditure of money now, but it will in years to come. The land in this Valley is too valuable to permit of tremendous losses from surface water at frequent intervals when a remedy can be provided.

(To be Continued.)



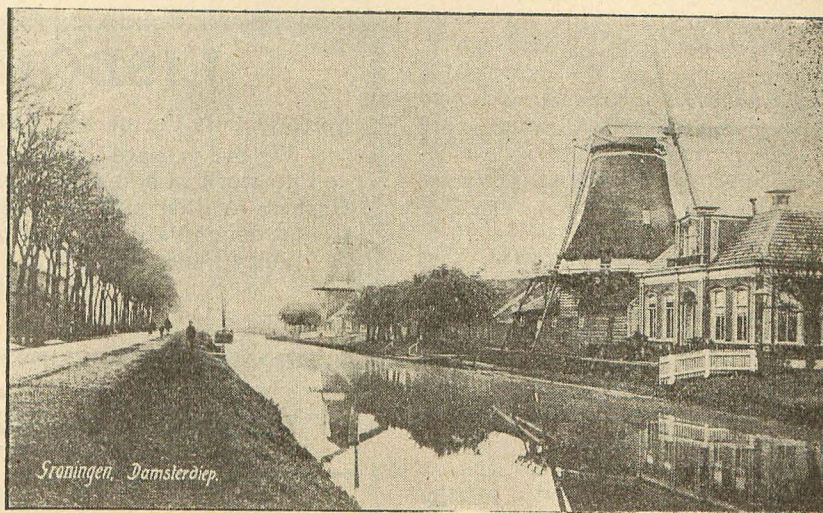
"Boats are also used to carry sugar beets."

dykes and thoroly ditching the areas enclosed within the dykes. These ditches would all empty into large canals and automatic gates. With the exception of a few weeks in the early spring the water would flow freely from the canals into the river. When the Red River rises above the mouth of the drainage canals the gates would close and prevent the water from the river backing up into the canals and overflowing the country enclosed within the dyke. During the period while the high water in the river prevails they would lift the water that gathers within, over the dyke, by means of steam pump, or a large number of wind mills.

They would extend their dykes until the Red River would be dyked in from the highlands southwest of Wahpeton to the north end of the state, even if they had to extend a dyke west by way of Neche to the Pembina mountains, to keep the water from returning. They also would dyke every tributary from the highlands to where they empty into the Red River, and would use pumps to take care of the water that would gather upon the intervening areas, resulting from melting snows or excessive rainfall, after conducting it down thru a network of ditches to the dyke next to the Red River. They would do all this if necessary. They would do it rather than submit to the tremendous losses the Valley has sustained during the past five years,—a loss of not less than \$15,000,000; and unless something more radical is done than is even now projected these losses will recur again and again. These statements may seem extravagant, but Holland is made up of more difficult and more expensive propo-

clines toward the river at the rate of from five to seven feet to the mile.

The occasional spring overflow occurs when the ground is frozen and but little damage, aside from inconvenience, results. The later rains, during and after seeding, which spread out in vast thin sheets over the country do the real damage. This water not only should be removed quickly but provisions also



"They would lift the water that gathers within over the dyke."

A. C. BULLETINS, 28 AND 29

By H. L. Bolley, Botanist

Canada Thistle; Means of Holding in Control.

The approach of the Canada thistle into the fertile farming regions of North Dakota where as yet there is but a slight acreage in the so-called cultivated crops

and where immense acreages must always be used for cereal crops, must be viewed with sincere alarm. We have often called the attention of the farmers living in the northeastern valley counties to the fact that numerous small areas were becoming infested with this weed. However, very little effort seems to have been made on the part of any of these farmers to fight the weed while the

patches were small. Some have replied that the Canada thistle does not produce fertile seeds in this region so they need not be alarmed. Nothing is further from the truth. The writer has never seen so much Canada thistle seed produced per head and stalk anywhere else. During the seasons of 1890-1891, record was made of all the areas in which the Canada thistle was seen in the state during an extended survey. There were then but a few small scattering patches in Traill, Grand Forks, Walsh and Pembina Counties. The farmers of Traill and Grand Forks Counties seem to have held their patches in reasonable control so that they have, as yet, not greatly increased. At that time there were some large fields thoroly infested in the territory between Neche, Bathgate and Pembina. Now that whole region is thoroly infested. Indeed it may be said that the county of Pembina is now generally quite thoroly covered by the Canada thistle. There are fields near St. Thomas, Drayton, Crystal, Neche, Bathgate and Pembina and large areas can be found in Cavalier, Walsh, Northern Grand Forks and Nelson Counties. Besides these, numerous small patches are now reported over almost every county in the state. As is usually the custom with the introduction of this weed to cultivation, the farmers are at first much alarmed but do very little. Later, they express the belief that nothing can be done and the whole region is overrun. Common salt solution at the rate of one-third barrel to 52 gallons of water kills the thistles back to the ground but seems to reduce the yield of grain slightly. Sodium arsenite used at the rate of 1½ pounds to 52 gallons of water was found very efficient, the thistles being killed completely to the ground within a few hours after the operation. The solution also blights the wheat somewhat more than iron sulphate, but did not appear to materially affect the yield. The arsenite is extremely poisonous, and much care should be exercised in its use. For example it should not be used upon nearly mature hay lands or upon nearly mature grain fields, the straw of which is to be fed to stock. Stock should not be turned upon pasture lands where it has been used until sufficient rain has fallen to wash it off the forage.

In spraying for the eradication of Canada thistles in grain fields use the same sort of a traction sprayer that is used for mustard and other weeds. All of those parts of the sprayer which come in contact with the solution should be made of wood, brass or rubber. The nozzles on the spray beam should be arranged so as to throw an over-lapping spray and should be in sufficient numbers according to the pump pressure to throw from one to one and one-fourth barrel of solution upon each acre. The

spray should be thrown out in a strong misty form. The nozzles should be pointed downward and backward in such a manner as to cause the liquid to be forced upon the tops and sides of the stems of the weeds.

If the thistles are found only in small patches it will be wise to buy a compressed air hand sprayer; one that can be carried upon a shoulder strap. This hand apparatus should be fitted with about a three foot compression hose and a three foot extension rod to allow one to readily swing the nozzles over a wide area. The nozzles should be of such a nature as to throw a rather wide flaring funnel shaped spray. The air pressure in the tank should be kept sufficiently high to allow the liquid to be thrown in a fine, forceful spray. Large drops will blight the grain and grass.

The following solutions are recommended: Iron sulphate at the rate of 100 pounds to each 52 gallons of water. The solution can be used generally upon grain fields without the slightest fear of injury to the yield or of stock poisoning. The thistles will be blighted so as to prevent blossoming.

Copper sulphate at the rate of 12 to 15 pounds for each 52 gallons.

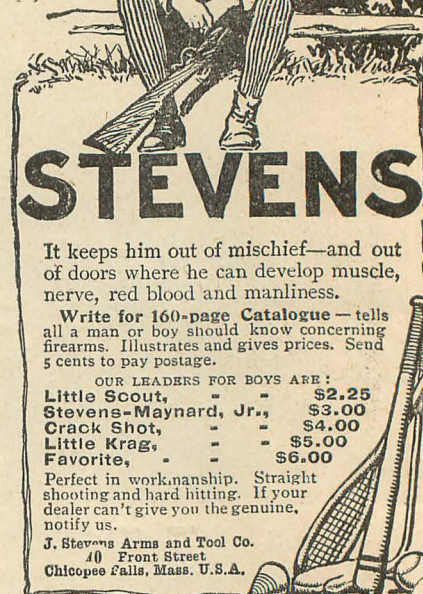
Common salt at the rate of 80 to 100 pounds to each 52 gallons of water.

Sodium arsenite at the rate of one and one-half to two pounds for each 52 gallons of water.

The salt and sodium arsenite solutions give best results in killing thistles.

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ARE MANY
UNTIL YOU
GIVE HIM

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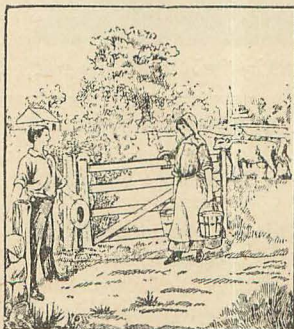
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THE FARMER'S RECORD

a large practical monthly farm journal. As a special inducement we will send it four months on trial for 10c. If you will also send us five names of farmers we will mail you the picture "Sweet Sixteen." Be sure to send the names with the 10 cents because we cannot give you the picture without them.

THE FARMER'S RECORD,

721 Third Street, Milwaukee, Wisconsin

They will die back to the ground and will only be able to sprout up a few inches before fall plowing.

Salt and sodium arsenite are much stronger herbicides than either iron sulphate or copper sulphate and each farmer should gain some personal experience with the use of them before applying to large areas of grain. In most places the Canada thistle is yet grouped in large, single patches and it is of more importance that the thistles should be destroyed than that a full crop of wheat or other grain or grasses should be grown. Most farmers will therefore find it advisable to use upon these patches either salt or sodium arsenite in somewhat stronger solutions than is recommended for general work in grain fields. On such patches, if iron sulphate is used, a second or third application of the solution five or six days after the first treatment proves very effective and may be advisable. If more than 52 gallons of any of the solutions are used upon an acre of grain the grain will be liable to be injured.

(Do Not Forget That The Sodium Arsenite Is A Strong Poison, and tho cheap and effective as a weed destroyer, should be used only with good judgment and due caution.)

Quack-Grass, How to Hold It in Check

Quack-grass (*Triticum repens*) is spreading rapidly thruout the Northwest because of present agricultural methods. The weed would not prove such a menace in a country of greater pasturage requirements and of more intensive cultivation methods. Continuous growth of cereals, loosely handled, gives this weedy grass every opportunity to develop. When an area is once infected the plant is soon dragged to all parts of the farm. As with certain other weeds that have become general, most farmers are paying but slight attention to small patches, others are much disturbed about the rapid spread, and yet others are already awake to the fact that they have the weed almost general upon their lands and are now getting correspondingly lessened yields of grain at a much greater cost.

Quack-grass is not native of North Dakota. It is being introduced by wind-blown seeds, by adulterated grass seeds and other farm seeds, in hay and other forage shipped to new localities; and is being planted in new areas by means of improperly cleaned seed grain, improperly composted manure and thru the dragging about of the broken underground stems upon harrows, plows, and other implements. This grass never dies out in fertile lands. It grows latest in autumn and starts first of all grasses in the spring. It forms a sod impenetrable by other plants. It can crowd out brome grass, alfalfa or other cultivated plants.

Its chief body is an underground branching, jointed stem, the root-stock, in which much reserve material is stored during the season of growth. Thru the vitality of the underground stems the plant is bridged over droughts and other hard times. There are nacent buds located at each joint, ready to produce a leafy sod from each broken part. Two or three hundred such joints may be found in a single square foot of sod. This grass is closely related to the native grasses which it resembles but is of much darker green color, is somewhat smoother and produces a much heavier leafage. In this region the lower sheaths of the young leaves are usually purple in color near the ground line.

To give advice to farmers whose lands are now over-run by this grass may seem as tho adding insult to unavoidable injury, for to quack-grass extermination there is no easy road. (No spraying method for eradication of this grass economically possible while other crops are to be grown.) Direct application of salt to the areas have not proven satisfactory.

What to do

If in small patches up-root in dry hot weather and as far as possible, remove all underground stems. Visit the area once every eight or ten days and remove every apparent spear of grass with the attached underground stem.

2. Or, cut off in July and cover closely with tar paper so as to quite exclude the light. Allow the paper to remain there thru July and August, then plow deeply.

3. Or, cut off closely in July and cov-

er deeply with straw or manure. Visit the areas often. Dig up any scattering plants not covered.

4. If in large areas, mow off when in blossom, break the sod shallow (not to exceed two inches) in mid-July. Back-set in mid-August at a depth but slightly deeper than before. Then disc and harrow thruout the fall never allowing any green leaves to show. Then plow deeply in the late fall. Plant a cultivated crop the following season and follow the cultivator with a hoeman who looks for every spear of the grass. Or, after thoroly preparing the seed bed in the spring give it a heavy seeding of German millet, say, two to two and one half pecks of good seed (preferably sown broad cast). Sow the millet late in May. At no time during this process of field preparation should the quack-grass be allowed to show green and if possible the ground should never be worked while wet. The drier the ground and hotter the weather the better the killing effect of the cultivation.

Any annual forage crop which will give a dense and rapid growth may be substituted for millet tho I think it has no equal unless it is fodder corn sown broadcast.

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AT THE AGRICULTURAL COLLEGE.

Prof. W. B. Richards is conducting a lamb feeding experiment at the station to determine the feeding value of speltz (emmer) compared with barley. Eighteen grade shropshire lambs have been divided into two lots of nine each, care being taken to get the lots as uniform as possible in weight and thrift. One lot is fed speltz and the other barley as a grain ration. Both lots receive clover hay in equal amounts for roughage. Very little is known about speltz as a feed and but few experiments have been

conducted to determine its value as compared with other grains.

Prof. C. B. Waldron of the horticultural department said the other day, in a discussion on selecting seed potatoes, that farmers should not select their seed potatoes from the bin, but rather select them in the field in the fall, picking only those from hills that produced the largest number of medium-sized, well formed potatoes. He further said that potatoes grown in clayey soils were bet-

ter for seed than those grown on light sandy soil as those grown on the latter soil tend to over-ripeness and over-ripe potatoes will not yield well the next year.

The farm husbandry graduates met for the first, January 15, to organize an alumni association. A constitution and bylaws were adopted and the following officers were elected: President, Chas. A. Michels, Minnewaukon; Vice-president, Frank Hilborn, Leal; Secretary-treasurer, Nels Thoreson, Mayville. It was planned to hold the next meeting in Fargo during the grain and stock grain growers' convention.

Dean Shepperd and Supt. Randlett have decided to hold a corn exhibit in connection with the grain and stock grain growers' convention next year. These corn shows are fast becoming the source of wide spread and intense interest in the corn belt, and as North Dakota is not entirely outside the corn belt, such a show must prove an attractive and valuable feature of the convention of 1909, and at the same time foster the interests of diversified farming thruout our state. It is to be hoped that a large number will enter this contest from all sections of the state. The following is a list of rules and the prize list. Any resident or school pupil in the state of North Dakota may enter this contest. All corn must be grown within the limits of this state and during the season of 1908. A collection of ten ears shall constitute an exhibit. No entry fee will be charged and all corn shown will remain the property of the exhibitor.

North Dakota Corn Show, Premium List

Class A Golden Dent	\$5	\$3	\$2
Dents N. W. Dent	5	3	2
Rustler Wh. D.	5	3	2
Any Other Va.	5	3	2
Champ. 10 ears	\$10	Medal	
Champ. 1 ear	\$5	Medal	

Class B

Flints Will's Dakota	\$5	\$3	\$2
Mercer	5	3	2
King Phillip	5	3	2
Any Other Var.	5	3	2
Champ. 10 ears	\$10	Medal	
Champ. 1 ear	5	Medal	
Grand Champ. 10 ears	\$20	Cup	
Grand Champ. 1 ear	10	Cup	

The Agricultural Club held the most successful meeting of the term Saturday evening January 25th. Mr. Babcock, student poultryman at the college, gave a very practical paper on the raising and feeding of poultry. Mr. Michels followed with a talk on Luther Burbank and his work as a plant breeder. Mr. Lanxon gave a few suggestions on the care of livestock, which brought forth considerable discussion from the members. After the program a business

meeting was held and the following officers were elected for the winter term: President, Chas. Michels, Minnewaukon; Vice president, J. V. Chilberg, Valley City; Secretary, J. C. Smith, Amenia; Treasurer, Wm. Mercer, Painted Woods; Critic, Robert Magill, Verona.

There are a great many men from all over the state taking up the short course work this winter. They range in age from sixteen to forty-five years. The subjects most sought after are steam and gas engineering, wood, machine and forge shop work veterinary science, feeds and feeding, breeds and breeding, soil physics, stockjudging, cereal judging and bookkeeping. The parents of the boys seem to have learned from experience that the above lines of study are most needed on the farm. The writer personally questioned a number of

young men on why they came to college, and they invariably replied that they had been sent here to learn subjects that are most practical from the farmers' standpoint. There subjects are presented in the form of concrete lectures, supplemented by practical work in the shops and laboratories. The student is required to take notes on the lectures and to make observations on his laboratory work. These note books must be submitted to the instructor at the end of the term's work so that he may correct them and see that the student has the subject well in hand. It is of course impossible to make a specialist of a man in the short twelve weeks that he attends college, but one thing is sure, that if he has applied himself diligently to his work he will be able to farm, keep a set of books, or operate an engine more intelligently.

Home Affairs

Katherine C. Neilson, Editor

WHAT NORTH DAKOTA HAS TO OFFER THE PUBLIC

By W. C. Gilbreath, Commissioner of Agriculture and Labor

All of our leading citizens recognize the purpose of our annual meetings and the importance they are to the people of the state. You are here to teach your fellow men what you already know and are putting into practice. The resultant benefits are well understood and appreciated. It is the farms of others as well as your own that you are seeking to bring to that state of cultivation that will make them equal, if not superior to the farms of other states.

It is sometimes difficult to overcome ancient prejudices, but today the spirit of progress and enterprise, growth and development is stirring the souls, thrilling the hearts and electrifying the minds of the American people. In all this vast era, where the manifestation of the nation's genius and greatness is amazing the world, no part of it is more willing or more capable of contributing, even beyond its proportionate share to the national glory—intellectually, morally and materially—than the great and rapidly growing state of North Dakota.

Farmers Have a Duty

While comparatively new and with its resources only partly developed, it yet possesses a people that are keen, resourceful and indomitable. North Dakota is forging fast ahead and is

destined to take its place at the head of the column of progressive states. In all this great northwest no state is prouder of its gallant and glorious past or more certain of its brilliant future. Its soil is productive, its variety of products matchless and its mineral wealth marvelous. It rests with men like you to stir the hearts and fire the minds of our people to greater exertions, greater efforts and nobler achievements. It is with you to aid and assist our people with these great changes and to encourage them to still greater efforts.

With its great developed resources making it possible for the pursuit of almost every line of industry known to the civilized world, with an unlimited market for its products, made possible thru increased railroad facilities and a promised waterway in the near future, affording a still great-

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WILLOBANK FARM

Larimore, N. D.

er outlet, North Dakota offers a multitude of advantages for commercial enterprise and is destined to expand and become of greater importance each year.

Within its broad expanse of over seventy million of acres there is found every variety of soil from the rich and fertile valleys the huge buttes where lignite coal is found in abundance. Its mineral resources have not yet been developed, but await the delving pick of the miner.

There are vast beds of brick and pottery clays which rest only to be brought forth by the hand of enterprise. No state offers more or better opportunities for the industrious homeseeker or careful investor than the state of North Dakota.

Resources of the State

When the Creator made North Dakota, he made it great and stocked it with strong points; made it a veritable store house of good things wherein could be found in abundance everything conducive to the health and comfort of man and beast. There are twenty-five thousand square miles of lignite coal; hundreds of acres underlaid with clays for manufacturing brick; tons upon tons of material for the construction of homes and buildings. Scratch the soil and the finest crops spring up; thrust a shrub in the earth and it bears fruit; dig into the side of the hills and they yield up their stores of that which makes the home comfortable during the long winter months. Turn loose your cattle upon the broad prairies and they fatten upon the nutritious native grasses. In the western part of the state the farmers go out with their mowers in the summer time and cut tons upon tons of excellent native hay. Nature intended North Dakota for a great stock center. Where do you find any better cattle, horses, sheep or hogs? Where is there a region better adapted to dairying purposes? We know all these things and appreciate them and it is with a glow of satisfaction that we repeat them and we sometimes wonder why the people of other states do not come, see and partake of the good things which we North Dakotans have to offer them. But the people of other states are beginning to learn of these facts, are acquiring knowledge of our treasures and are making preparations to come and enjoy with us the good things which the Almighty has provided. Investors and homeseekers are becoming acquainted with these facts and are coming on almost every train that crosses the North Dakota line.

Hundreds are using Personal,
page 3.

SAD STORY OF GOING WRONG

A writer in the Commercial Bulletin tells a sad tale of boys going wrong. Boys, think of this story in shaping your life.

"How Young Men Go Wrong," or "Advice Thru the Prison Bars," might properly be ascribed as titles to a little talk made a few days ago by Richard Wilson, 23 years old. But Richard doesn't pose as a lecturer. He is in the Cook County jail in Chicago—and it isn't the first cell he has occupied in his short but variegated career.

The route taken by Richard, and into which he enticed his younger brother, Walter, aged 19 years, is no different from that into which thousands of other boys have fallen. The two brothers are in jail charged with robbing the mail of their employers.

But the Wilson boys are not "of a feather" with the hundreds of other boys that fill the tiers of cells in the massive gray stone jail building. Not only did they have every detail of a good bringing up, in refined surroundings, but they still bear the stamp of refinement.

"I have seen hundreds of young men prosecuted, but I don't know that I ever was so impressed with a couple of lads as I was by these two boys," said a veteran postoffice inspector, who took an active part in the apprehension of the Wilson brothers. "After learning what Richard's record was I could hardly believe when I saw him that he was the same chap that the record makes him out to be. Richard is a crook. Yet he has the refinement and tact of a gentleman.

"I have washed my hands of the older boy," said his father. "He has broken both his parents' hearts and brought his mother to her grave thru grief a year ago. I don't believe Walter would have gone wrong had it not been for the older boy's influence. Those boys had the best of bringing up. I can't understand why

both of my boys should have gone so far astray."

Thru the bars Richard told the old story—all the way from the prayers his mother taught him to the things he said:

"Bad company will take any young fellow to the bad.

"I thought every young chap ought to sow his wild oats, but I see now it was a delusion.

"Cigarets, poolrooms, dance halls, the red light district is the well defined route to h——. I went it, so I know.

"I have tried to live up to about \$25 a week on a \$12 salary. The result was ruin.

"All the reformation in the world will not reach a lot of young fellows.

"Most young men think they know more than their parents about fast living, but they are dead wrong.

"I had the best father and mother in the world. They brought me up right, but I envied the fast livers."

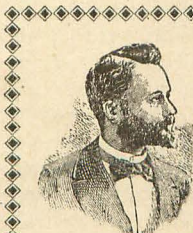
Simple little epigrams, couched in plain words, yet they tell the story of a ruined life, and heartbroken father and mother. They came from the heart of this wayward boy and like all that comes from the heart, they are singularly impressive.

Yet today there are many young men traveling the same old path, and looking upon it all as a joke—until they wake up.

In this enlightened age there are some who would persuade us that to cling steadfastly to the simple principles which have governed good men since the world began is rather old fashioned—that it is an evidence of progress and up-to-date-ness to be a little bit swift, sporty. Ask Richard Wilson.

ARONAUTKA DURUM SEED!

"Aronautka is one of the best of the Durum Wheats," says Prof. Sheppard of the N. D. Agriculture College. Price \$1.25 per bu.; Sacks free with 5 bu. orders and over. **EDWARD BOWMAN,** Kenmare, N. D.



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North Dakota Farmer

AND SANITARY HOME.

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Vol. 9 FEBRUARY, 1908. No. 8

If this paragraph is marked your
subscription is out. Before re-
mitting read **PERSONAL** on page 3.
We are trying to help you in your
farm life.

THE SOCIETY OF EQUITY

The Society of Equity has had some
unfortunate experiences during the past
year, has re-organized with a list of new
officers, at least in part, and has es-
tablished a new journal to be known as
The Equity Farm Journal. Any or-
ganization which is for the betterment
and improvement of agriculture and the
standing of the farmer in this country
cannot be too highly commended.
While we have not always been able to
agree with some ideas put forth by the
Society of Equity, the purpose of the
organization is one that can commend
itself to every farmer,—an organiza-
tion for his improvement and better-
ment; and if the organization is kept
within its proper channels it can accom-
plish worlds of good for the benefit of
the farmer; it can see that the farmer
receives his just dues; that he receives a
fair remuneration for his labor; and that
the price paid for his crops is what he
is entitled to receive.

The second number of the New Equity
Journal has just reached us, and con-
tains a great deal of valuable informa-
tion and will, undoubtedly, be improved
with each issue. Let the farmers of
North Dakota join in making this or-
ganization what it should be, representa-
tive of the people of the state and for the
benefit of the farmers of the entire
country.

WHAT WILL THE SEASON BE?

For the past five or six seasons there
has been an abundance of rainfall to in-
sure a crop in any part of the state. In
fact, for parts of the state the rainfall
has been so excessive as to largely injure
the quality of the crop. There was not
a large amount of moisture in the
ground as it froze in the fall, for the
season's rainfall of 1906 was not large
as compared with that of the previous
year, and it was only because of the sur-
plus brought over from the previous
year that the effects of the shortage was
not felt.

Are the farmers planning on a dry
season? Are they planning on a short-
age of forage crops? If not, would it
not be well to take this into consider-
ation, and make sure that the conditions
are most favorable for a good crop.
Then, if the season should not prove
dry there is no harm done, and if the
season should prove dry, there would be
ample forage and other crops that would
be found profitable.

Let us assume for once that the season
may not be all that we hope for it. If
so, then corn and cultivated crops will
become a more prominent factor than is
wheat. The stock will need forage
crops; there will need to be planted corn
and millet, and more of grasses to supply
the shortage.

We shall watch with much interest
to see what the season brings forth, and
the wise farmer will be the one who is
prepared to meet emergencies.

DIVERSIFIED AGRICULTURE

North Dakota has an area equal to
that of all New England. It has a wide
diversity in climate, and a variety of
soils. It is a region strictly agricultural
in its makeup. There is no reason why
it should not become the greatest agri-
cultural commonwealth of the North-
west. In order to become this, we must
have diversified agriculture; we must
have larger dairy industries; we must
have larger stock interests; and we must
cultivate the land with the object in
view of economizing and conserving the
soil fertility: we must remember that we
cannot continue for all time to draw
water from the bucket unless we can
replenish it. We have in the soil a
stock of fertility, and this can be drawn
upon until such time as it has reached
its minimum proportion, and then if we
would succeed in producing successful
crops we must once more add the ele-
ments of fertility to the soil. It is bet-
ter to prevent the loss of these elements,
to keep them within the state, by pro-
ducing such crops as remove the least
amount from the land where they are
to be shipped out of the state.

By diversified agriculture, growing of
clover and other grass crops, there
should be no need for supplying nitrogen
to the soil. Sufficient nitrogen can be
gathered by the farmer without ex-
pense from the air and again returned to
the soil to maintain the fertility for all
time. This is not true for the mineral
constituents,—phosphoric acid, potash,
lime, etc. If these become deficient in
the soil, they can only be replaced again
by the use of commercial fertilizers,
or other products containing phosphoric
acid, potash, etc.

Further than this, by crop rotation,
by diversified agriculture, by the grow-
ing of stock, by dairying, etc., the soil
is kept in the best possible physical con-
dition; the humus is maintained in the
soil; and in dry years the largest possible
crop is secured, as against a minimum
yield where these conditions have not
been properly looked after.

WHEAT SCREENINGS

What is the feeding value of wheat
screenings? About how much screen-
ings are there per bushel of wheat?

Oakes, N. D.

J. G. B.

A few years ago the writer examined a
number of samples of screenings gath-
ered from sixteen different elevators in
different parts of the state, a total of
sixty-four samples, and the average re-
port for the sixteen elevators for the
sixty-four samples was that the dock-
age, on account of the screenings,
amounted to 1.55 lbs. per bushel. It
will thus be seen that in a crop of 60,-
000,000 bushels the amount would be
very large for the state. That the prod-
uct has good feeding value will be shown
from the following analyses of the sam-
ples as then taken:

	Percent
Water	8.41
Ash	6.27
Proteids	14.33
Crude fibre	7.17
Fat	2.23
Nitrogen free extract	61.59

100.00

It will thus be seen that this product
contains as much proteids as the average
clover hay, or as much as low grade
wheat brands found upon the market.
There is, therefore, being shipped out of
the state a very large amount of valu-
able feed stuff which should go to fatten
the stock of the state, and would be
enough to fatten every animal that now
finds its way to the market, and thus
add considerable wealth for the farmers
of the state.

**Hundreds are using Personal,
page 3.**

EDUCATIONAL TENDENCIES

In a recent address President Elliott of Harvard University stated that every boy should be required to learn a trade; that is, that he should study in a trade school until he was familiar with some one of the trades. It would not be necessary to force a boy to learn a trade if the educational tendencies of our time were in the right direction, and were in harmony with the requirements of modern demands. Nearly every school in the land is still headed toward the College and the University. They train the mind, but do not train the eye and hand. When we awaken to the necessity of our times, we shall have attached to every high school manual training classes where boys will begin the study by their ninth year; where they will become familiar with the use of tools, and, by the time they are fourteen, become thoroughly conversant with the use of the simple tools used in the various industries. This work should begin in the grammar school, then, the high school, instead of being designed for the five percent and without any consideration for the requirements of the needs of the ninety per cent or more of our children, should have the courses so arranged that a boy can take his choice of classical or scientific education, or, he may go into the industrial school and learn a trade that will fit him to be a producer in our country. One good blacksmith is worth a dozen poor lawyers, one good carpenter is worth a dozen poor physicians. Good artisans are not easy to find, and our schools under modern conditions have not kept abreast to the demands that have been made upon them.

Not only in the rural schools should there be introduced similar studies and agricultural studies, but we shall have to prepare the young men of the future for the work which they are to do. This will be far less expensive than to leave them unfitted and unqualified for the duties of life in more than ninety percent of the cases where no provisions have been made for them in the past. It will reduce the number of recruits in our reform schools and in our asylums and penitentiaries.

In the past the apprentice system was usually employed for fitting young men for positions in the manufacturing industries. Today the apprenticeship is a thing of the past, and our schools must be equipped to supply us with the mechanics of the future.

In his annual message President Roosevelt sounded a warning and called attention to the necessity for such educational changes. President Elliott has recently emphasized the same fact. Let us hope that the states will continue to follow the lead of Massachusetts and establish trade schools, not a few here and

there thruout the country, but trade schools in connection with every high school, and that they shall run back into the grammar schools. That our colleges shall better and better equip themselves to give more advanced work to continue the work already undertaken in the high schools.

Illinois has recently established a baking school in connection with the University. North Dakota has erected a mill and baking department at the Agricultural College; and let us hope in the near future that we shall have similar work undertaken in various other lines.

DURUM WHEAT. ITS MILLING AND BAKING QUALITIES

By E. F. Ladd, Before the Grain Growers' Association

Altho durum wheat has been introduced generally into this country but five or six years, the amount annually produced has assumed large proportions. The Honorable Secretary of Agriculture, in his Annual Report for 1906, calls attention to the fact that in 1905 there was probably produced in this country 20,000,000 bushels of durum wheat, a good portion of which, he says, was used in Minneapolis. The Secretary further estimates that in 1906 not less than 50,000,000 bushels, or, approximately, one-twelfth of the usual wheat crop was that of durum wheat, of which it appears that only about 12,000,000 bushels had been exported from the country when the Secretary wrote his report.

At a somewhat later date, the Secretary, in commenting upon the crops of 1907, stated, with regard to durum wheats, "that it grows in regions where the rainfall is light, and that the crop for this year, 1907, less than a decade after the first introduction of the seed, is worth over \$30,000,000."

It will thus be seen that durum wheat is an important farm crop in the United States at the present time, and this is especially true for parts of North Dakota. It is important, therefore, that a study be made of the milling and baking qualities of the durum wheats as grown in this state. This study we have endeavored to carry forward at the Agricultural College. During 1907 there was built a mill and laboratory building, especially fitted for experimental work; probably, the most complete experimental mill in the United States, and it is the purpose of the Department to conduct experiments with all classes of wheats, but at the present time particularly with durum in order to determine the true milling and bread-making qualities of the durum wheats as found upon the market. Of one thing I feel convinced, as the result of experi-

ments up to date, that there is quite a marked difference in the different strains of durum being grown in North Dakota. It is, therefore, very important to determine which are the better flour and bread-producing strains in order that the growth of these particular strains may be encouraged, and the less favorable strains either improved, or their growth discontinued.

It is a well-known fact that there is a difference in the bread-making value of durum wheat flour, as compared with that of Northern grown spring wheats. But, as Prof. David Chidlow has said, "Much of the discussion centering about the use of durum wheat for bread-making has been based upon a misconception of some of the elementary principles of bread-making." The durum flours differ in property from that of either the spring wheats, the Kansas wheats or the soft winter wheats. The durum wheats are richer in nitrogen than either of the others, and the quality of the gluten is likewise different. While the durum wheat does not make as large a loaf as the best spring wheat flour, it is much superior in this respect to flours from the soft winter wheats. I am convinced that durum wheat flour will make good bread when it is made by methods best adapted to its use, but it does not make the same kind of bread as that produced from other flours.

It should be borne in mind that possibly the best methods of tempering and grinding the durum wheats are not yet practiced. When we know more of the chemical and physical structure of the wheat kernel, we may possibly be able to develop better methods of milling.

I am informed by old millers that when the bluestem wheat was first introduced the millers were strongly opposed to it on the ground that it did not mill so well and freely as the fife generally grown at that time. It took some time for the millers to become educated to grind the bluestem. It is quite likely that in time we shall hear less complaint from the millers regarding the milling qualities of durum. The longer time it is grown in this country, the more fully it becomes acclimated, the more nearly in milling properties will it approach the miller's standard. It should be pointed out that the miller reports in general that bluestem and fife will mill with less power and more freely than do the durums. Here, again, it should be borne in mind that milling methods, at present in vogue, have been especially developed for fife and bluestem; and experience may be expected to improve the tempering and milling methods for durum.

The average weight per bushel for the 2056 lbs. of fife and bluestem, which were milled and represented sixteen lots, was 59.57.; while, for the 1816 lbs.

of durum milled and representing 15 lots, the weight averaged 61.83 lbs. to the bushel. The durums, therefore, averaged 2.25 lbs. per bushel heavier than did the fife and bluestem for clean wheats.

Of late there has been some talk regard a variety of wheat known as Velvet Chaff. One sample only of this wheat has been milled, and this weighed 64 lbs. to the bushel for the clean wheat and gave flour:

	Percent
Patent	47.63
First Clear	17.24
Second Clear	5.77

Total 70.64

In appearance the wheat was very promising, but the sample did not prove to yield either strong flour or produce a good bread, as was expected. Conclusions should not be drawn too freely from a single experiment.

The baking and chemical tests are not as yet completed for the samples produced from all the wheats. In general it may be said that the durum flour produces a bread having more of the creamy yellow than does the best of the fife and blue-stem flours but quite a few of the fife and bluestems are equally as yellow in the patent flours as is the durum. In the case of the first clear and baker's flours the contrast is less marked than in the patent; in fact, the durums often give a lighter colored bread than do some of the fifes and bluestems. Why we should demand "golden yellow" butter and "snow white" bread is hard to understand. Undoubtedly, it is due to a considerable extent to the results of a wrong impression on the part of the consuming public, for in neither case are these colors necessarily a badge of superiority, since they are largely of artificial production in the products as now found upon the market. The butter is colored by the addition of a dye, and the flour bleached by the means of a powerful physiologically active chemical agent. Personally, I like the flavor of bread well made from durum flour. The manner of making the bread is of more importance to me than the mere color of the flour itself.

For patent flours, in the case of fife and bluestem, I have tabulated the results for six baking tests, all those completed up to date.

Bread from Fife and Bluestem

No.	Wt. of Fl grams	Wt. Loaf grams	Vol. cu. cm.
118	342	509	2321.
121	340	514.5	1942.
128	367.7	539.3	2076.
132	367.6	543.1	2076.
133	340.	501.5	1583.
142	345.	517.	2253.
Total	2111.3	3134.4	12561.
Mean	351.9	522.4	2085.1

In the case of bread produced from durum patent flour, we have available twelve baking tests with results as follows:

Bread from Durum

No.	Wt. of Fl grams	Wt. of loaf grams	Vol. cu. cm.
115	350.	540.	177.8
117	353.3	533.5	2175.
119	347.9	523.2	2060.
120	364.	541.7	2011.
122	373.	552.6	2209.
125	345.	509.7	1876.
126	345.2	525.6	1941.
129	361.3	541.	1958.
130	340.	503.2	1843.
137	340.	519.	2155.
139	351.6	516.	2122.
140	340.	516.2	1958.
Total	4208.3	6321.7	24185.8
Mean	350.7	526.8	2015.49

In order that we may better compare the results we may briefly summarize as follows:

	Wt. of fl grams	Wt. of loaf grams	Vol. cu. cm.
Fife	351.9	522.4	2085.1
Durum	350.7	526.8	2015.49

It will be seen by the comparison of these figures that the weight of the loaf

for the durum averages slightly more than for the bread produced from the fife and bluestem; while the amount of flour used is slightly greater in the case of fife and bluestem. In volume the fife and bluestem have a little of the advantage producing a slightly larger loaf; that is, in volume the durum loaf equals 96.65%, and in weight the durum loaf equals 100.32% of the fife. In flour used, the durum equals 99.65% of that of the fife. Therefore, for flour used, there is but a slight difference even in volume.

It should be borne in mind that we have not in these experiments endeavored to use an extraordinary large amount of yeast for the purpose of inflating the bread beyond what would be practical in commercial baking. It would be unfair for us to draw final conclusions before the chemical and gluten tests are completed, and as soon as this is done our results will be given in bulletin form. We may say, however, in conclusion that the durum has made a better showing, both in production of flour and in baking tests, than has generally been conceded by the millers, and I know no reason why the results of our tests are not absolutely fair and correct.

VALUABLE STATISTICS

The Crop Reporting Board of the Bureau of Statistics of the Department of Agriculture finds, from the reports of the correspondents and agents of the Bureau, that the numbers and values of farm animals on farms and ranges in the United States on January 1, 1908, were as follows:

Farm Animals	Per cent compared with Jan. 1, 1907.	Numbers	Average price per head	Total Value
Horses	101.2	19,992,000	\$ 93.41	\$1,867,530,000
Mules	101.4	3,869,000	107.76	416,939,000
Milch cows	101.1	21,194,000	30.67	650,057,000
Other cattle	97.1	50,073,000	16.89	845,938,000
Sheep	102.6	54,631,000	3.88	211,736,000
Swine	102.4	56,084,000	6.05	339,030,000

Compared with January 1, 1907, the following changes are indicated: In numbers, Horses have increased 245,000; Mules increased 52,000; Milch Cows increased 226,000; Other Cattle decreased 1,493,000; Sheep increased 1,391,000; Swine increased 1,290,000.

In average value per head, Horses decreased \$0.10; Mules decreased \$4.40; Milch Cows decreased \$0.33; Other Cattle decreased \$0.21; Sheep increased \$0.04; Swine decreased \$1.57.

In total value, Horses increased \$20,952,000; Mules decreased \$11,125,000; Milch Cows increased \$4,560,000; Other Cattle decreased \$35,619,000; Sheep in-

creased \$7,526,000; Swine decreased \$78,761,000.

The total value of all animals enumerated above on January 1, 1908 was \$4,331,230,000, as compared with \$4,423,698,000 on January 1, 1907, a decrease of \$92,468,000, or 2.1 per cent.

The numbers of farm animals, as stated in the above table, represented, as nearly as ascertainable without an

enumeration, the actual number of each specified class on farms and ranges on January 1. The figures are the results of a very careful investigation by the agents and correspondents of the Bureau, who used all available means to secure accurate information.

The details by States will be published in the February number of the Crop Reporter.

C. C. Clark,
Acting Chief of Bureau, Chairman,
Nat C. Murray,
George K. Holmes,

Approved: John J. Darg,
W. M. Hays, F. W. Gist.
Assistant-Secretary Crop Rp. B.

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DR. PRICE'S
DELICIOUS
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For sale by all representative grocers.

The Name "**Nokomis**" On the Label
of any food product is an absolute

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And it is also a guarantee that the product bearing the label has reached the highest degree of excellence in flavor and wholesomeness that it has been possible so far for any food product to reach.

If your dealer does not handle Nokomis Canned Goods and Nokomis Coffee, send us his name and address and we will undertake to see that you are supplied.

STONE-ORDEAN-WELLS COMPANY, - - Duluth, Minn.

RETAILERS PROTECTED

The National Food Law did not take effect until January 1st, 1907; and all goods on hand or receive by you prior to that time, are not affected in any manner by the National Food Law, and will not be, unless shipped from one state into another after the law goes into effect January 1st, 1907.

For your protection, it is necessary that you handle only pure goods, properly labeled within the meaning of this law and we, therefore, call your attention to the fact that food products sold to you by us are not adulterated or misbranded and are all guaranteed to conform to the requirements of all food laws, both State and National. This guarantee protects you from prosecutions under the National Food Law on any food products purchased from us hereafter.

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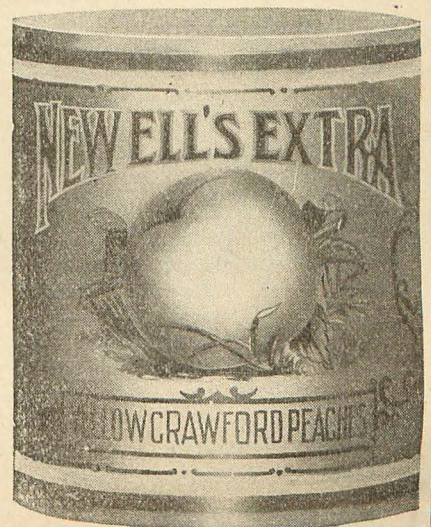
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Represents the highest quality of food products that can possibly be obtained. Purity and quantity always stand foremost.

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Livestock Department

PROF. W. B. RICHARDS, Editor

SUCCESSFUL ANNUAL MEETING OF THE NORTH DAKOTA LIVE STOCK ASSOCIATION JANUARY 15TH, FARGO, N. D.

One of the most successful meetings the history of the association was held in connection with the Tri-State Convention on January 15th. The two previous annual meetings were held apart from this convention at different points in the state, but from the results of this year's meeting, it was the unanimous opinion of all those in attendance at the meeting that jointly with the Tri-State Convention is the proper time and place to hold the meeting. The idea of holding the meetings at various points in the state emanated from the hope that it would serve to interest local communities. It was found, however, by this year's experience that a larger attendance of the members is assured if held as it was this year. If possible, meetings will be held at several points in the state during the year for the purpose of encouraging and benefiting certain sections in relation to this movement.

The meeting was opened by W. P. Heath, a student of the Agricultural College, who read a paper on "The Necessity of Encouraging Dairying in North Dakota." Mr. Heath showed how dairying would furnish a reliable source of revenue thruout the year to the farmer and its effects upon maintaining soil fertility. He also showed that it would solve the vexing labor question if more generally practiced by our farmers.

E. H. Rawl of the Division of Dairying of the Department of Agriculture at Washington spoke on the necessity of better cows in our dairy herds. He emphasized the fact that few farmers in North Dakota know what their herds are really producing. They should test their herds and find the unprofitable cows in the herd, then replace them with better cows.

John Christianson of New Salem, N. D., a pioneer in dairying in this state prepared a paper on "How to Build up a Dairy Herd from Range Cows." As Mr. Christianson could not be present his paper was read by his son, a student of the Agricultural College. This paper contained some very good things. It showed what can be done by persistent effort, by taking advantage of one's surroundings as the people did at New Salem, which has become a thriving dairy centre.

The subject of dairying gave way at this point to the consideration of a sub-

ject that pertains to the whole realm of live stock production. The subject discussed was "The Fancy versus the Practical in Breeding," by L. H. Storgaard of Aberdeen, S. D. The speaker made clear the fact that many failed in producing pure bred stock because they were over zealous and did not adhere to practical methods. Too much consideration is given by some to pedigree while they overlook the necessity of getting merit with pedigree in selecting animals. His use of the human being to contrast the different types of animals adapted for feeding purposes brought forth considerable applause.

At the opening of the afternoon session the first speaker introduced was J. P. Williamson of Havana, N. D., one of the most successful farmers of the state. His address was listened to by the audience very closely. His subject was "How to Care for, Feed and Grow Livestock." He emphasized providing proper buildings about the farm, both for the care of the livestock and everything pertaining to the farm. He showed a model of the arrangement of all his farm buildings and their construction. They have been designed to handle the stock, with the least possible labor. Mr. Williamson urged greater diversification of crops and the converting of these crops into marketable products in the form of live stock and their products.

The next speaker was Prof. W. B. Richards of the North Dakota Agricultural College who discussed "Profitable Swine Production under North Dakota Conditions. He outlined a method of growing pigs from birth until of marketable weight by the extensive use of green forage crops adapted to North Dakota conditions, in connection with grain feeding. The talk invited considerable discussion that proved very profitable.

A. E. Chamberlain, Supt. of Farmers' Institutes of South Dakota delivered one of the best addresses of the whole convention on "Type versus Breed." Mr. Chamberlain is a very pleasing speaker, in addition to the fund of knowledge he possesses on this interesting subject. After his address every one was convinced of the fact that the breeder of live stock neglects to breed for uniformity of type.

Dairying was given another inning when R. F. Flint, Assistant Dairying Commissioner of North Dakota spoke on the status of dairying in the state and how it could be improved upon. His

remarks were as usual enthusiastic and appreciative.

The feature of the annual meeting which added to its success more than any other feature by way of bringing the members to the meeting which resulted in giving them an opportunity for an enlargement of acquaintance, was the banquet held during the evening.

The reader cannot be given a better idea of the good feeling that existed at this banquet than by quoting a portion of the remarks made by the Fargo Forum concerning the banquet.

"Never was enthusiasm, well founded, so manifest around the banqueting tables in Pirie's hall as it was Wednesday night on the occasion of the annual banquet and meeting of the North Dakota Live Stock Association to its members. It was the first time that the association had met for a social function and it may be said that the auspices for this initial one were as pleasant as they could be and cold type is wholly inadequate to properly reflect the valuable results such a meeting will have on that important branch of the state's agricultural interests, the one of live stock. A new era has been opened.

"The guests to the number of about 100, and consisting of the association members, outside friends of the association, and editors of live stock papers, took their seats at the dinner tables shortly after 6:30 o'clock. The real host for the occasion was Secretary Richards and he was a hospital host in all that the term implies. The dinner menu was one of eight courses and served with the best of appointments by Pirie. E. S. DeLancey, of Valley City was the toastmaster for the postprandial proceedings. It is quite natural for an enthusiastic livestockman to be happy, and Mr. DeLancey was just as happy as he could be in the introductions of the gentleman who responded to the four toasts where were on the formal program.

First Banquet of the Association

"In his introductory remarks the toastmaster recalled the fact that this was the first social function under the auspices of the State Live Stock Association, and he took the liberty of asserting that it would be an annual occasion from now on. A good beginning had been made and glancing about the tables he had reached the conclusion that the faithful believers in live stock, in this state, were his fellow guests tonight. He referred to some of the forebodings among the few who attended the organization meetings five years ago. Faithful ones kept the association alive. Three years ago Wisconsin did this state a mighty good turn, it sent along W. B. Richards who assumed charge of the throttle, as secretary, and since then live stock association affairs have been

moving under full steam ever since, and no one knows it better than every one of the recorded individual members of the association. Live stock interests from one end of the country to the other know full well that there is something doing in the great state of North Dakota.

The following responded to toasts at the banquet: Supt. T. A. Hoverstad, "The Influence of the Association";

tural College, N. D.; Executive Committee, James Austin, Hannah, N. D., Donald Campbell, Hannaford, N. D., W. W. Brown, Amenias, N. D., C. A. Gallup, Fairmount, N. D.

GOOD CULLING NEEDED

As a general proposition it can be stated that the breeder and average

He might have added with considerable force and truthfulness that were the weakest heifers spayed and sent to the shambles a great benefit would likewise be brought to bear directly upon the future possibilities of the improved cattle business.

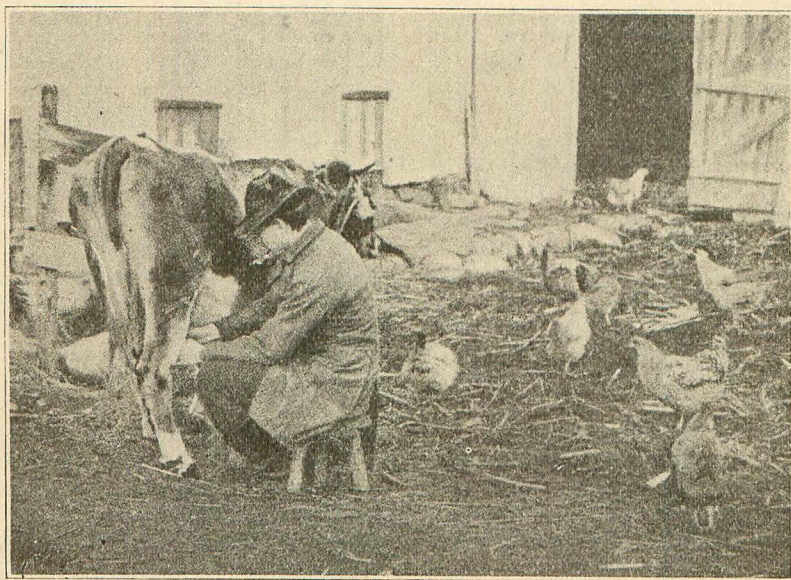
Poor Bulls Make Good Steers

Some time ago an English visitor to this country made the statement that there is an unusually large number of choicely bred and fitted steers in the British show rings this season. He explained this by stating that on account of the slackness in the demand for registered bulls, more castrating had been done this year, thus taking many comparatively inferior bulls out of the ranks of the breeders and proportionately raising the number and quality of the steers.

Our steer classes cannot be overcrowded with first-class individuals, but it is one of the easiest things to put a lot of inferior bulls upon the market that are an injury to the breeding of improved live stock. In one way the steer is a credit to the judgment and the capabilities of the breeder and feeder; in the other they are a detriment and a curse to the business.

Close Culling Raises Standard

Thus culling will raise the standard of the well-bred cattle by sending hundreds



Why Are Some North Dakota Farmers Satisfied with a Scrub?

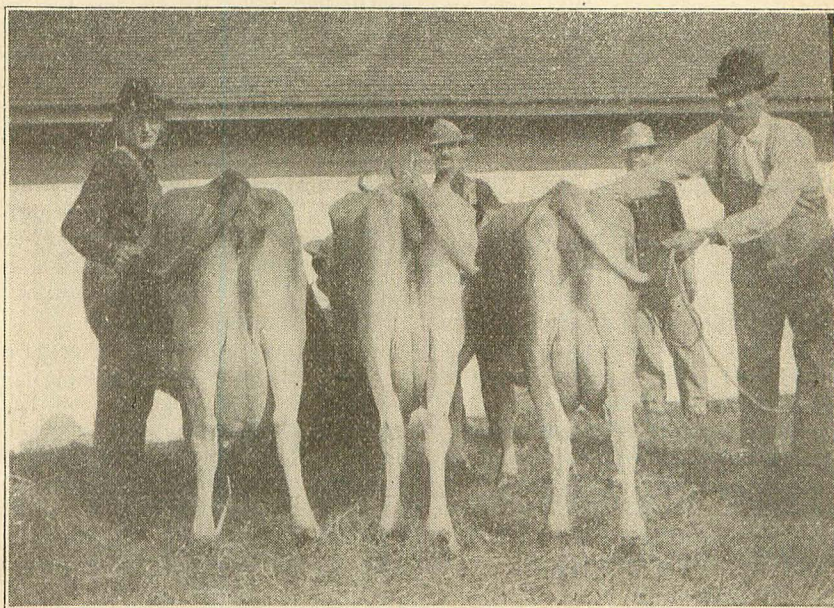
C. E. Wilson, Secretary State Fair Association, "Our State Fair"; Wm. Magivny, Pres. Union Stock Yards, S. St. Paul, Minn., "Our Market"; President J. H. Worst, "Live Stock Exhibits as I Saw Them in Europe."

In addition to the regular speakers Geo. A. McFarland, Pres. Valley City Normal School and an Aberdeen Angus breeder spoke of his interest in the association.

It is seldom that an opportunity is offered where one can hear so many good things spoken at a banquet program.

A business meeting was held at the close of the banquet, and some very important business was transacted. Secretary Richards reported some interesting things regarding the year's work. The Breeders' Directory that has been compiled was explained and suggestions were called for on how it might be improved upon. Resolutions were passed endorsing the South St. Paul Show. Fifty dollars was appropriated to be given as premiums for stock shown by North Dakota exhibitors, at the Northwestern Live Stock Show for 1908.

The following officers were elected: President, John G. Mills, Hannaford, N. D.; First Vice President, John Donnelly, Grafton, N. D.; Second Vice President, Geo. N. Smith, Amenias, N. D.; Secretary, W. B. Richards, Agricul-



farmer who is the closest culler is the man with the best breeding stock.

Some time ago a prominent live stock salesman stated thru the columns of the agricultural press that one of the best things that would happen to the pure-bred cattle interests would be the general castration of a large per cent of all of the young bulls dropped annually

of inferior animals to the slaughter house. At the same time a good or a better profit will be returned to the producers.

One of the great troubles of the breeder—and it seems equally true of cattle, hogs and sheep—is that *when there is* a demand for breeding stock every effort is made to meet the demand, irrespective

of the quality that may have to be offered to satisfy the emergency. If it were possible to convince breeders that it is as important to send out only first-class individuals under high prices, as well as when stock is cheap, one of the greatest boons to the pure-bred breeding business would be accomplished.

Nature's Habits Are Ignored

When man assumed the responsibility of handling, breeding and raising domestic animals he took upon himself a responsibility which few men fully appreciate. When nature held uninterrupted sway in the destiny of what is now known as the domestic animal, a rule of the "survival of the fittest" prevailed. This was nature's way of selection. The weak and infirm were outside of the lists, even were they allowed to reach maturity. It was the best and most vigorous stallion or bull that ruled in the drove or herd. He attained his supremacy thru his physical prowess. Not only was he called upon to maintain his authority within his own herd and subdue all rivals, but he was the protector of the females and the iryoung. That he was able to accomplish this much was due simply to the fact of all of the fit he was the best. The weak sire was also weak in physical power. If the farmer did not bar him from exercising his natural functions, his lack of fighting quality easily made him the victim of his more vigorous rival.

Nature Demands Vigor

One of the capabilities that the female had to possess was the physical force that would protect her and her young from the attack of the prowling marauder. Were she lacking beyond a certain degree sooner or later the fate of the weaker was meted out to her.

With the offspring, either male or female, a certain vigor of constitution was demanded. He must possess the health and force to follow the mother just as she followed the herd. It required a young one in the prime of health to meet this condition. If he were lacking, if he could not maintain the pace, or if he could not command the physical force to meet the relentless conditions under which he had been born and would be raised and matured, he bore the cost of his weakness. Nature held out no alternative. He must meet the requirements or perish. Thus nature maintained her standards.

Man Breeds Without Selection

When man took charge of affairs things were different. He assumed the work that nature had hitherto exercised, but graciously shirked the responsibilities. The offspring that would have perished under the rule of the "survival of the fittest" was fostered and reared to maturity by man. Often times this is a mistaken kindness. For the good of the breed such animals that have lived and

been allowed to regularly propagate themselves might have better succumbed early with profit before they were allowed to reproduce. This would have been nature's way. The stockman's better plan would have been to open the gates of the feed lot and drive the unqualified in for market preparation.

Because a man is not a breeder of pure-bred stock is no reason why he cannot follow a rigid course of culling and selection. There is as much opportunity for building up a common lot of cattle, hogs or sheep as there is in pure-bred, registered animals of the same sorts.

Farmers do not realize, as a class, that improvement lies within their grasp. It is purely a matter of careful culling out of comparatively inferior animals and selecting the best for breeding purposes. The man who has three or four head can follow the plan. Of course, the stockman with scores or hundreds can carry the work forward on a more extensive plan, but it will be no more effective in the end.

Chance for Average Farmers

If an observing person will go thru the country and carefully inspect miscellaneous herds of cattle, droves of hogs and flocks of sheep, and even the poultry, he will be surprised at the possibilities that are offered to the man who has an inclination to cull, and cull closely for the future advantage of his stock.

Among any number of cattle, hogs or sheep there are some animals that are better than others, and because they are better they are more useful; and for this, if no other reason, should be used to breed the future produce. A man cannot expect to use the common and inferior and get good results, but with proper selection he can weed out those which are not returning the most profit and favor those that are paying the best. Obviously this is a matter that is entirely to the advantage of the owner.

Too Many Sell Best

As a general proposition, what do we frequently find? Some men—and there are many of them—regularly sell much of their best young stuff simply because they will at the time bring a little more money. Such a man is not exactly selling the "hen that laid the golden egg," but he is allowing himself to part with the prospective breeders that may be equally as profitable as their dams.

Some cows will drop better calves than others. These calves are best even up to the time they are sold upon the market. They prove their superiority simply because they bring more upon the market. In other words, there is more profit in a cow that will annually yield a calf that will bring \$60 than the one worth only \$40.

In the dairy there are frequently cows that will yield in the neighborhood of

300 pounds of butter a year without great effort or special feeding. On the other hand, some men keep cows that will barely produce 150 pounds. Both require equal care and practically the same amount of feed, but if butter is sold which will pay the most?

Selection Applied to Sheep

Some farmers have mutton ewes that will yield in the neighborhood of ten pounds of wool annually, besides producing twins that sell near the top of the market. Possibly in the same flock there are ewes that will shear from four to five pounds and produce a single inferior lamb. Does it require pencil and paper to determine which of the two sheep is the more profitable or to discover which produces the best ewe lamb to breed from?

The same is true with hogs. The litters of all sows are not on equal merit. Frequently the owner can select sow pigs from extra good sows which will regularly return to him a much greater profit than the sow that farrows inferior pigs and small litters.

Thus, we say, the farmer can afford to breed for better stock. The cost is scarcely greater; no more time or attention is required, but in the end the results may frequently be the difference between loss and profit of the year's feeding. The breeder needs to cull relentlessly and select carefully, but the farmer can profitably follow the same course and materially increase his profits from the purely market standpoint.

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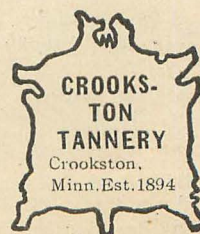
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WHAT THE ILLINOIS BUTTERMAKER SHOULD DO IN THE CHURN ROOM DURING 1908

By Carl E. Sell, Illinois Experiment Station

(Readers of the North Dakota Farmer will remember Mr. Sell as a North Dakota boy and a graduate of the A. C. in the early days. The article will interest many North Dakota dairymen.—Editor.)

The year 1907 has passed into history and one more year of experience has been added to the Buttermaker's record. May I truly say that each Illinois creamery operator has balanced his books with the thought that he is better able than ever before to cope with some of the problems that are sure to be repeated during the coming year. If so, I feel that the quality of our butter in 1908 will be improved.

The man who has conquered some of these difficulties is the one that deserves credit. Several things have happened in our creameries the past year that should not have passed unnoticed.

Attitude toward the Patrons

When we speak of the work to be done in the churn room is it necessary to say anything of the relation of the buttermaker and his patrons? Yes, because the foundation of his work depends to a certain extent upon the man who produces the milk.

There are very few creameries in Illinois where the operator does not come in direct contact with his patrons. No one in a community can do more than he, in spreading dairy information. The farmer may want instruction regarding the care and handling of his cows. His milk or cream may not be up to the standard, and he needs help to bring about its improvement. He may want to learn how to test milk, that he may study the individuality of his cows. If the buttermaker can not give this information, he can not hold the respect and confidence of his patrons.

There is a community in this state, not in the dairy section, that organized and built a creamery. The first two buttermakers were a failure. The third man was hired, and it took a year of hard work to bring the milk producers back to where they were when the creamery started. At the end of his third year one of the directors said, "This man is worth \$150 a month, in fact, we can not do without him. Our business has more than doubled, our patrons know the why and wherefore of some of the dairy and creamery problems. Every pound of butter made this year passed the extra mark." If this man continues his work in that community the only thing that will prevent the Illinois State Dairyman's Association

from meeting there sometime in the future, is the size of the town.

Is it not a fact, that the patrons who bring the best product and give you the least trouble are the ones that have obtained dairy information and I honestly believe that some of you creamerymen can recall when your patrons were given their first instruction.

The buttermaker should be just as firm on the quality of the raw material today as he has ever been. There should be no letting up on the discussion of such an important subject until we see an improvement. No one has yet invented or suggested a method by which this poor hand separator cream can be churned into butter that will pass inspection by the critical trade. Cream properly cared for even if two or three days old with a small amount of acid developed can be made into butter that will more than pass the extra mark.

The buttermaker should have a certain standard and all patrons should meet that requirement. It would be still better if all creamerymen use the same standard and always consider quality first and quantity second. Not all of the creameries in the state receive the same grade of cream. Is that difference due entirely to the patrons' attitude toward cream production, or has there been some other force at work? It is evident that this other force is education.

Much has been said regarding the handling of cream in the creamery. Many operators may have methods that prove satisfactory in their creameries. No fixed rule will give the same results regardless of locality. However, we believe that if a number of our buttermakers would make a change, there would be a noticeable effect upon the quality of the butter. If there is a decrease in the grade of Illinois butter it is not altogether due to the grade of milk or cream that is received. Part of it at least can be traced back to factory methods. Patrons without defence have sometimes been made to take more than their share of the blame for the low grade of butter. Not all of our whole milk creameries can say that their output passes the extra grade. This is also true of our creameries handling farm skimmed cream.

I am sorry to say that since there are patrons here and there who deliver off flavored goods, it has made a number of our men more careless. They can use that as a shield when anything is said regarding quality. Let us forget the past and during the coming year follow this plan. Set your standard for quality high. Give instruction to the careless patrons and if the quality of his milk or cream is not improved, reject his product. After the cream is in your charge handle it in such a manner that the best

possible butter can be made from it. Use a liberal amount of starter and be sure you know how to make it. Why use a starter? Because there is not another thing that will show such a beneficial effect upon the quality of the butter. Many say, the cream is already sour and no starter is needed. This is a wrong idea. The starter is added not only to help increase the acid but to improve the quality.

A short time ago some one from a neighboring state said that better butter would be made today if less starter was used. That is not the fault of the start-

The Whole Truth In A Nut Shell

Middleburgh, N.Y.
Sept. 4, 1907.
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of order every week or two as my neighbors who are using other makes, ARE.
DAVID L. VAN WORM.

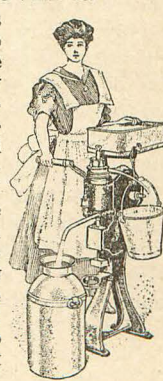
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has been adding to its reputation for RELIABILITY which is UNEQUALLED today. Dairymen today choose the U. S. because they KNOW it can be depended upon to do the Best work ALL the time and the Longest time, too. Time has PROVED it.

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er. If you can not make a starter, learn how.

Our suggestive plan for the fall and winter months is to ripen the cream in such a way that the desired acid can be developed in as short a time as possible, without employing a higher ripening temperature than 75 degrees F. Use judgment as to the amount of starter to be added. When it is not crowding the capacity of vat or churn and the average test of cream is low. Enough starter or selected milk may be added to lower the fat content to 20 per cent. During ripening the cream should be agitated frequently and the cooling begun when there is enough acid developed. Usually during the warmer season of the year there is an abundance of acid present when the cream is delivered. The starter should be added immediately. An hour later the cream should be cooled to a temperature sufficiently low for churning.

When Should the Cream be Churned

This will depend upon factory conditions. There is no fixed rule as to how long the cream must be held before churning, other than this. It must be held long enough at churning temperature to produce the desired forming of the butter fat. The method employed in whole milk factories is to hold the cream until the following morning. This has been followed in the hand separator factories. Where they have not the proper facilities for holding the cream for any length of time without its being changed by the room temperature it seems possible that a better grade of butter might be made by churning the cream two or three hours after it has been cooled. With good vats there is no change in quality, whether the cream is churned in the afternoon or the next morning. The above conclusion was obtained by four different judges, scoring 100 tubs of butter, 50 of which were churned in the afternoon and 50 the following morning.

The only serious objection to holding the cream for the short period is that it is apt to be overdone and the cream not allowed to stand long enough at the desired temperature. This will not show itself in the flavor but rather in the body.

The Churning of the Cream

The two most important factors in churning are—the temperature of the cream and size of granules. The first is changed with the seasons and the length of time that the cream is held cold. The granules should be just large enough to permit the handling of the product in drawing off the buttermilk and washing off the butter without any loss.

It is not safe to state just what temperature should be employed in churning, other than this. The butter should at no time be in a slushy condition or so

soft that the granules do not remain more or less separate. That does not mean that the temperature must always be 50 or 52 degrees but it would be better if it could be fairly constant. For our state there can be a difference of from four to six degrees in churning temperature between winter and summer.

Washing of the Butter

All of the buttermilk should be allowed to drain off. Then add a small amount of water distributed evenly over the butter. Allow this water to drain off. Add about the same amount of water to the churn for washing as there was buttermilk drawn off. The temperature of this water should be governed by the temperature of the cream. In our work we find that the best results are obtained when the temperature of the buttermilk and wash water correspond. Do not infer from this that you can churn at a temperature that will leave the buttermilk 62 degrees or over and in that case the wash water must have the same tem-

perature. After the wash water has been added revolve the churn 10 to 15 revolutions and immediately allow the water to thoroly drain off. While this last water is passing off, the salt must be evenly distributed over the butter and the working begun. First revolve the churn on slow gear about 10 times, then allow to stand for 15 minutes before the working is commenced. It is difficult to say just how the butter should be handled to give the finished product its best appearance. Here the operator's judgment must be relied upon. The butter must not be under or over worked and the salt must be dissolved and evenly distributed. Follow the directions given for handling each particular make of churn, is the best advice we can give. In our work this past year we have endeavored to work out a method that could be put into general use in creameries and give the result desired. Aside from flavor the common faults found in butter in the markets are, butter over-worked or under-worked, body weak

SPECIAL ANNOUNCEMENT TO COW OWNERS

It is with more than ordinary enthusiasm that we beg to call the attention of cow owners and dairy farmers to the new 1908 line of the improved De Laval Cream Separators, consisting of ten machines, ranging in capacity from 135 lbs. to 1350 lbs. of milk per hour.

Although for a number of years De Laval machines have seemed as nearly perfect as separators could be, thousands of dollars have been and are being spent annually in the effort to improve them. The past two years of experiments and tests have been unusually productive of new ideas and big improvements in separator construction. Even the highest hopes of the De Laval experimental force and mechanical experts themselves have been exceeded.

The principal De Laval improvements are greater simplicity of construction, ease of cleaning and replacement of parts, less cost of repairs when necessary, easier hand operation, more complete separation under hard conditions, greater capacity and a material reduction of prices in proportion to capacity.

The line includes several new styles and capacities of machines never offered heretofore. No matter how small or how large the dairy the new De Laval line has a machine exactly suited for it.

If you intend buying a separator do not fail to examine the new De Laval styles before you make your selection, as otherwise you must surely regret it later on. A handsome new 1908 De Laval catalog can be had for the asking.

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or slushy, color mottled or streaked. These faults are caused by defective workmanship. How can we overcome them? Salt will dissolve in presence of moisture and it is known that if there is a small amount of water present in the churn at the time of working it will materially help in dissolving the salt. This accounts for the practice of not allowing all of the wash water to drain off.

By this method the exact amount of water left in the churn could not be determined. Altho a known amount of salt was added each time the finished butter did not always leave the same amount of salt as part of it was taken up by the surplus water. There seems to be a little less danger of injuring the body of the butter if excessive working is done in the presence of water. The surplus water does not have any tendency to increase the moisture content of the finished product providing the other details of the churning operations have been carefully watched.

The above facts being known there is no objection to adding a known weight of water per pound of butter. The amount of water to vary with the size of churn and amount of butter. The amount of salt to be used is figured on the same basis.

Results show that marketable butter varies considerably in salt content. Average butter should contain $2\frac{1}{2}$ to 3 per cent of salt. When the work is under control it is easier to get uniformity. Therefore a plan can be worked out to suit individual creameries. In our creamery when the regular work is done this plan is followed.

For every pound of estimated butter in the churn add $2\frac{1}{2}$ oz. of salt and one-fourth of a pound of water. Close the churn tightly and revolve 10 times before starting the worker. Then work the usual number of revolutions. 20 to 30 with the Disbrew and from 12 to 16 with the Victor, etc. The only objection found to this method is that some salt is wasted. We feel that it has been more than repaid when the other advantages are taken into consideration.

As the investigation progresses other ideas, pro and con, may be brought to light. Results and details of this investigation will take up too much of our valuable time, but we wish to state these facts. The above method was used in the making of 108 tubs of butter for this season's work on pasteurized and unpasteurized butter. In nearly every churning the number of revolutions the butter was to be worked was stated before the working commenced. Not a single tub of butter showed defective workmanship. The average composition of the butter—samples taken from churn were as follows:

Water 13.92, Fat %82.56 Salt %2.93, Casein% .76.

Composition of the butter made dur-

ing the month of August by this same method, the work being done by the men in charge of the creamery.

Date	Moisture	Fat	Salt	Casein
8/ 3	13.59	83.03	2.23	1.15
8/ 6	14.15	81.98	3.09	.78
8/ 7	15.31	81.40	2.75	.54
8/10	13.85	82.74	2.53	.88
8/ 9	13.91	82.13	3.15	.81
8/13	14.34	82.10	2.87	.69
8/14	14.34	82.33	2.64	.69
8/16	14.25	82.70	2.26	.39
8/17	12.96	84.44	1.96	.64
8/19	14.84	80.55	3.78	.83
8/20	14.60	84.17	2.57	.66
8/23	13.82	83.19	2.22	.77
8/24	14.19	82.95	2.17	.69
8/27	14.64	82.14	2.56	.66
8/28	No Record			
8/30	14.02	82.79	2.41	.88
8/31	14.08	80.82	4.54	.56
Average	14.18	82.46	2.67	.72
Highest	15.31	84.44	4.54	1.15
Lowest	12.96	80.55	1.96	.54

The following table shows the analysis of all of the butter made from October 23, to November 23 U. of I. Creamery

Date	Moisture	Fat	Salt	Casein
10/23	14.98	81.47	2.60	.95
10/24	15.23	81.43	2.31	1.13
10/26	15.58	81.01	2.19	1.22
10/29	15.46	81.36	2.14	1.14
10/30	15.91	81.03	2.12	.94
10/31	15.36	81.30	2.47	.97
11/ 2	15.39	80.19	3.70	.72
11/ 5	13.78	83.75	2.09	.34
11/ 6	15.44	81.86	2.36	.34
11/ 8	14.71	81.87	2.46	.96
11/ 9	No sample			
11/13	16.63	77.80	4.46	1.14
11/15	14.76	82.29	2.17	.78
11/16	No sample			
11/19	14.86	82.96	1.52	.66
11/20	15.04	82.22	1.99	.78
11/22	15.61	80.62	2.87	.90
11/23	16.31	80.34	1.60	1.75
Average	15.31	81.34	2.44	.91
Highest	16.63	83.75	4.46	1.75
Lowest	13.78	77.80	1.52	.34

Uniformity of Product Necessary

Every buttermaker's aim should be to produce butter that will suit his trade. Flavor is the most difficult part to control. Salt plays an important part, both in relation to quality and overrun. As stated elsewhere, the general demand of the market seems to be about two and one-half per cent of salt. Butter made in different factories bought by the same commission firm may vary 2 per cent. By all means salting should not be overdone but to a certain point it is beneficial to flavor and keeping quality.

Body is the backbone of the butter. There is little excuse for a single tub of butter ever being made with that part

of it defective. It is always within our control. Why is it, that today we hear some of the old butter men say: "Is it impossible for some creameries to make that fine, firm, waxy piece of butter that was once made? The cows are about the same, the feed and seasons have not changed." Some are sacrificing the body that they may sell more water. I have no sympathy for the man who makes this a practice and much less for the one who advocates it.

This brings us to the subject. What is butter made of? Is it known just what proportion of water, fat, salt, casein and ash shall constitute a tub of butter? Do any of them bear any direct relation to quality? This is a subject for in-

investigators to settle and until then we must be content in making a product that is sold on the merits of its quality.

The law has passed the limit of water as 16 per cent. The fat is the basis on which all creamery calculations are figured. It is also the food value of butter. It is bought principally because it contains butter fat. It would therefore seem absurd to place the legal limit on anything but fat. We hope that the time will come when that change will be made.

Every Illinois buttermaker should be interested in knowing what he is doing with this valuable product every day placed in his charge. Not only to see it made into butter of finest quality, but that each patron is credited with no more nor less than what is his, that the loss in handling be reduced to a minimum.

We have the Babcock test for the fat content and we have the moisture test for water; salt also is within determination. After all, the results depend upon the knowledge and application of method. It is our occupation to promote methods, and we were in hopes to give the Illinois Buttermakers at this Convention, some definite data concerning that question, attracting more attention among us than any other one. This applies to the control of the composition of butter. In the past year we have analyzed 1300 samples in duplicates making a total of 2600 separate analysis. These comprise over 500 samples taken at intervals in the general butter market. Over 100 samples taken at various places

thruout this state and Iowa, where the method of making was under our personal supervision. Nearly 700 of these samples represent the butter made un-

der experimental conditions. In these tables, and others, we have material which if applied will aid in the solution of this distressing problem.

Showing comparison of the composition of butter in two consecutive churnings.

Also showing variation in samples taken from same churn.

Churn 1				
	Water %	Fat %	Salt %	Casein %
	15.87	79.35	3.81	.97
	16.36	73.16	4.43	1.05
	15.43	79.78	3.72	1.07
	16.41	78.56	4.17	.86
	16.11	78.98	4.15	.75
	16.77	77.66	4.55	.82
	15.60	79.02	4.41	.97
	15.47	79.79	3.62	1.12
	15.48	79.68	3.88	.96
Average	15.94	79.00	4.08	.95

Churn 2				
	Water %	Fat %	Salt %	Casein %
	14.76	82.29	2.17	.78
	14.32	82.72	2.40	.56
	14.23	82.75	2.28	.74
	14.83	81.96	2.63	.50
	14.39	82.57	2.26	.78
	14.95	81.57	2.26	1.04
	14.54	82.33	2.09	1.04
	14.36	82.59	2.07	.98
	13.84	83.33	1.96	.87
Average	14.47	82.48	2.23	.82

Showing composition of the butter when samples are taken from the churn as compared with taking them two days later from the tub.

Average of 56 churnings.				
	Water %	Fat %	Salt %	Casein %
	13.92	82.56	2.93	.76
From Tub	13.03	83.52	2.70	.78

Comparison of water in worked and overworked Butter

Worked	Overworked
13.60	13.38
13.40	13.02

Results of analyzing from 46 creameries. All of the samples obtained in the market the same day

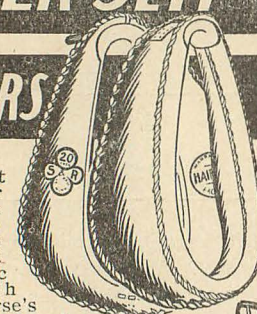
	Water %	Fat %	Salt %	Casein %	Possible over-run, allowing 2% for loss.
Average	13.22	83.82	2.18	.78	16.9
Highest	15.46	87.25	3.50		12.3
Lowest	10.28	81.47	.86		20.3

Average by States

	Water %	Fat %	Salt %	Casein %	Possible over-run, allowing 2% for loss.
Iowa					
10 Cr'ys	13.88	83.21	2.11	.80	17.7
Minn.					
20 Cr'ys	12.85	84.03	2.40	.72	16.6
Wis.					
10 Cr'ys	13.10	84.11	2.08	.71	16.5
Ill.					
5 Cr'ys	13.57	83.98	1.75	.70	16.7

1 Creamery, Location not known.

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SCHEFFER & ROSSUM CO.,
238 E. 4th St., St. Paul, Minn.

Table showing water content of half-worked and worked butter from 23 churnings.

Half-worked	Worked	Half-worked	Worked
15.14	15.27	14.19	13.64
13.76	14.27	14.16	13.68
14.51	13.24	13.66	13.79
13.92	13.41	14.08	14.03
13.41	13.73	13.38	14.05
13.41	14.18	13.17	13.30
13.17	13.60	13.41	13.64
13.46	13.71	13.17	13.30
13.22	13.40	14.48	13.74
13.99	13.27	13.49	13.39
13.51	13.76	14.38	13.53
13.60	13.22		

Av. Half-worked 13.76

Av. worked 13.70.

The tables given are representative for results and need no further explanation.

The following table shows that there is no constant relation between fat and water and in order to know the overrun the fat determination must be made.

Each lot represents two samples of creamery butter collected on the same day

	Moisture %	Fat %	Salt %	Casein %	Possible overrun, allowing 2% for loss.
Lot 1	13.42	79.88			22.6
	13.42	63.58			17.2
Lot 2	11.84	84.02	3.50	.64	16.6
	11.81	85.01	2.03	1.15	15.2
Lot 3	13.42	82.73	3.10	.75	18.4
	13.42	84.05	1.63	.90	16.6
Lot 4	14.43	82.22	2.50	.85	19.2
	14.44	83.34	1.53	.65	17.6

Result of analysing samples taken from a factory consignment of butter as it arrived on the market

Date when butter was made	Water %	Fat %	Salt %	Casein %	Av. overrun for each day.
12/5/07	12.88	84.21	1.90	1.01	
	12.45	84.87	1.86	.82	
	13.02	84.39	1.98	.61	16.1
12/7/07	14.25	82.57	2.11	1.07	
	13.83	84.10	1.20	.82	
	14.52	82.47	2.00	1.01	18.01
12/9/09	14.91	81.61	2.46	1.02	20.00
12/11/07	15.05	81.94	1.94	1.07	
	14.95	81.91	2.09	1.05	
	15.94	81.12	1.96	.98	.20
Av. for week	14.18	82.92	1.95	.95	18.10

ENVILLA STOCK FARM, COGSWELL, N. D.,

200 HEAD REGISTERED ANGUS CATTLE—Calves, yearlings, bulls and cows of the best breeding and lowest prices.

150 SHETLAND PONIES AND GRADES—Any color, size or weight.

300 ANGORA GOATS—Kids, billies and nannies.

250 REGISTERED HOGS—Duroc Jersey, Improved Yorkshire, Hampshire, Improved Chester White and Poland China. Bred gilts and young pigs.

5000 HEAD POULTRY—All varieties: Rocks, Wyandottes, Leghorns, Reds, Brahmas, Orpingtons, Houdans, Minorcas, Games, Javas, Hamburgs and Bantams.

GEESE—Toulouse, Embden, Buff, Chinese, African and Canadian-wild.

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PEA FOWLS, PHEASANTS, PEARL AND WHITE GUINEAS, FANTAIL PIGEONS—Birds and eggs from above varieties. Some choice cockerels. Baby chicks one day old.

RABBITS, HARES, GUINEA PIGS, SQUIRRELS, COONS, ANGORA CATS, WOLF, FOX AND RABBIT HOUNDS. COLLIE DOGS.

Write us for complete price list of varieties. Remember we won 90 per cent of the Blue Ribbons the last two years at the State Fairs. Order your eggs for hatching, poultry and stock of

L. H. WHITE, Proprietor,

ENVILLA STOCK FARM,
Cogswell, N. D.

SELECTING AND MATING A DRAFT STALLION

(Address by John Guardhouse, at the Ontario Winter Fair, 1907.)

It is very important always to select a good sire, and, in selecting the sire, it is very important to know the mare. You know just what kind of an animal you have, and just what kind of a horse would be suitable to mate her with. As a farmer, and speaking largely to farmers, I believe that the farm is the proper place to raise horses in this country, because you must have the land for them to run on and develop their muscle. I will therefore, confine my remarks more particularly to the heavy class of horses.

We get no one horse that is perfect. There are some defects in every animal, and it is necessary that any defects in the mare be made up in the selection of the sire. Be sure that the sire is exceptionally strong in any weak points the mare may have. It is important to stick to one breed or another; don't cross breeds. When we were out on the Ontario Commission, we ran across animals bred from pretty nearly every breed of horses in the Province of Ontario, probably crosses of Shires, Percherons and Clydesdale, and then we had far ers who thought they could get first class horses by breeding to light horses, so as to get good steppers on the road; therefore, we would have, say, a mixture of all kinds in one animal, or an animal that was very little good for anything. If you have a Clydesdale mare breed her to a Clydesdale horse; if you have a Cleveland Bay or a Standard-bred, or a roadster, stick to that type if you want to get the best results. Look over your horse carefully, and get the best possible one you can. There are too many poor ones in the country at present. The Hon. Mr. Monteith said, in his opening remarks, that we had nearly three-quarters of a million horses in the Province; and if you could raise the standard of these horses so that they would be worth from five to ten dollars apiece more, it would be worth while. Have you ever stopped for a moment to think that it costs no more time to look after a good horse than a poor one? It only requires one stall in your stable to keep a good horse. You have to have just as good feed and just as much of it to feed a poor horse as you do to feed a good one, and in some cases a little more. To get the best results out of stock-raising you first require to have the animals, and then give them the best care and attention. Put a poorly-bred horse in a good stable, and give him the best care, and you will only have a poor horse.

When I am going to select a sire, I first look at the head of an animal. I

like to get one with a broad forehead, bright, intelligent eyes and a nicely set ear. I believe that a horse is a very intelligent animal, and that he can be taught nearly anything, and I have sometimes seen men handling horses which I thought knew more than the men handling them. Therefore, I say, get a horse with a nice bright intelligent eye and a broad forehead, and a nicely-set ear, and you are apt to have a horse that has some brains, and he can be taught something. Not only that, but I like a horse that has an open jaw, not meaty and thick in flesh, nice clean-cut throat, to insure good breathing power, and a nicely-set neck, well blended into the shoulder. Get all the flesh on the shoulder you can. I don't want to see a narrow, thin neck going into a broad-set shoulder. You need not be at a afraid in selecting a horse that there will be no place for the collar to rest on; you will always find a stopping place somewhere. If the neck is thick and well planted into the shoulder, you are likely to have a good covering of muscle over the shoulder, and if the horse gets a little thin in condition, he is not so apt to get sore shoulders. Then, he should have a deep chest, with the legs well set back under the body. I don't want a horse with the legs set out on each corner; it will make him appear a broad horse and he will be broad between the front legs; but if you have a horse with legs set out on each corner, what are you likely to have? A horse with a hollow chest and weak fore-flank, two things we want to avoid in breeding animals at all times, because they denote a weak constitution, and that is a great detriment to breeding stock of any kind. The legs should be well set back under the body a fair width apart. I am not advocating a narrow horse; we want all the chest width we can get. He should be well muscled down on the inside of the leg, and a fair length from the elbow to the knee; as much of the knee to the outside of the leg as you can reasonably get. The bone should be as large as you can get it with the right quality. It is an important thing in draft horses to get the right quality of bone. Get all the bone you can in draft horses, but don't sacrifice quality in order to get quantity. You will notice the same thing in draft horse that you notice in a man's hands. You will find some men who can do any sort of hard work, and get their hands as rough and dirty as possible, and they can come in and wash them, and they will hardly have a crack or break, whereas the hands of another man doing the same work will become rough, sore and chafed; and we have the same thing exactly in horses. A horse with hard, flinty bone, covered with a nice skin and with a good quality of hair, will not likely have any trouble in the way of

scratches or anything of that kind. A horse should have nice, springy pasterns, of medium length, and hard, flinty foot; of good material. I don't advocate a great big foot; I think a medium sized foot will wear a little better, and is not quite so apt to get down on the heel or flat-footed. I like a horse with the withers carrying far back. The back should be short and strong and well muscled; get the ribs springing out well from the backbone, and as long as possible with a nice arch. It is a difficult matter to get the same spring of ribs that we like to find, and that depth of rib, in the same animal, but aim to have as much of both as you can. If you want a man exceptionally strong, you should get a man that is built with strong muscles down his back and over his hips; as a rule, you will find he is a pretty strong man, and you will find the same thing in a horse. I have heard some men say. "I want a good dinner-basket." So we do, but that is not all. You can have enough barrel to carry a good feed, with a good deep forerib to provide lots of room for lung power, and as a rule, you will find a strong horse with a good constitution, and he will travel well and wear well.

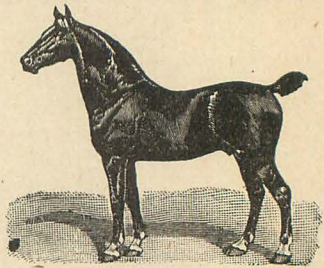
Coming back to the hook bones, I remember we used to have them very much more square and flat. I don't advocate that; I want a horse with a nice smooth hook-bone that will cover well with muscle and flesh—the same thing that we look for in Shorthorn cattle. We want the quarters fairly long, well-laid down in the thighs, and well muscled down in the inside of the leg, and as broad as you can possibly get them on the outside; strong in the stifle, and with a good broad, clean hock.

Standing by the side of a horse, select an animal with a nicely set leg, and with a hock broad, clean and hard. Looking at the front of a horse, you want a hock that is broad and clean, that is the kind of a hock that will wear and stand all kinds of heavy work, no matter whether you have to back with heavy loads or draw forward.

Another important thing is to know that you have a horse which is a good walker—a horse that will pick up his legs fair and square, and set them down fair and square, moving every joint; not a horse that will move his limbs with no knee or hock action. If these defects are in the sire they are very likely to be in the colt. Many of you have noticed horses which, when they are walking away from you, will throw their feet out sideways, and others, when they are being led towards you, will step over. That is something we do not want; I prefer a horse that will pick his feet up straight and set them down straight. I would select a horse every time that stepped over, if I had to have one or the

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for
Curb, Splint, Sweeny, Capped Hock,
Strained Tendons, Founder, Wind
Puffs, and all lameness from Spavin,
Ringbone and other bony tumors.
Cures all skin diseases or Parasites,
Thrush, Diphtheria. Removes all
Bunches from Horses or Cattle.

**As a Human Remedy for Rheumatism,
Sprains, Sore Throat, etc., it is invaluable.**
Every bottle of Caustic Balsam sold is
Warranted to give satisfaction. Price \$1.50
per bottle. Sold by druggists, or sent by ex-
press, charges paid, with full directions for
its use. Send for descriptive circulars,
testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

other, because you will find that he will climb a hill better than a horse that keeps his legs too far away from his body.

WHICH IS THE BEST BREED OF DRAFT HORSES?

W. S. W., Granville, N. D., asks the following questions: "What kind of draft horses would be the most profitable to raise? How do Clydesdales compare with other draft breeds?"

This is a difficult question to answer and can not be done direct. Our best draft breeds, including the Percheron, Clydesdales, Shires and Belgians have some particular merit that offers in each breed and for that reason one breed because of its characteristics common to the breed is better adapted to certain conditions and kinds of horse raising than others. Personally the writer prefers the Percheron and Clydesdales to the other breeds. The Percheron is the most popular breed in this country at the present time. Many prefer them over the Clydesdales because they have less hair on their legs. A common criticism against the Percherons is the fact that their legs are too light, and bone not of the best quality. They are also frequently too upright in their pasterns.

The Clydesdale on the other hand has good legs and pasterns but they frequently lack in the middle piece. I think it is commonly recognized that the Clydesdale or Shire crossed on common farm mares produce a larger per cent of horses that possess draft type.

This is due to two reasons. First the farm mares lack bone as a rule; this the Clydesdales and Shires improve in the colts, and secondly, they aid more prepotent as a breed because of their greater purity of breeding.

In selecting a breed to raise one should be governed largely by his own likes. If he shows more preference for one breed over another that is the one he had better use. After the selection has been made it should be adhered to unfaithfully.

NOTICE TO SHORTHORN BREEDERS OF NORTH DAKOTA

A committee of Shorthorn breeders on sales appointed by the North Dakota Live Stock Association has decided to hold two sales this coming spring under the auspices of the Association. One of the sales will be held at Fargo on June 3rd and the other at Minot on June 10th. I wish to notify every breeder in the state who desires to contribute to these sales to notify me not later than March 1, 1908. They should state the number which they desire to contribute and which sale they wish to enter. It must be remembered that only a limited number can be accepted from each breeder. Nothing but cattle of considerable merit will be accepted.

I wish also to call attention of those who desire to buy Shorthorns this coming spring to keep these sales in mind. We expect to give the people of the Northwest an opportunity to buy cattle of merit and guaranteed in every respect at reasonable prices.

W. B. Richards,
Secretary, N. D. L. S. Ass'n.

MINNESOTA POLLED DURHAMS

Purebred Registered Shorthorns Without Horns

Oldest herd in state. Both sexes, not related, for sale, either as foundation herds or separately.

Special prices on foundation herd.

A Polled Durham bull is the best dehorner.

F. B. NICKERSON,
Good Thunder, - - - Minn.

GREENVIEW STOCK FARM

Has 100 Poland China young pigs, sired by Rockwell Chief, Corwin U. S. 2nd and Prince Corwin. Sows strongly bred of Tecumseh blood. Orders booked now for fall delivery.

Pure Scotch and Scotch Cross Shorthorns, Young and old stock for sale. Call or write if you want North Dakota bred Poland Chinas or Shorthorns.

E. C. BUTLER,
Cooperstown, N. D.

POLAND CHINAS

We have for sale several choice spring pigs sired by "Giant Perfection" No. 3477, a grandson of Chief Perfection, the 2nd, the greatest hog the Poland China breed has ever produced. CENTER LANE STOCK FARM, Kenmare, - - - North Dakota

All Boys Interested in Corn Culture Contest Should Read Personal on Page 3.

THE BEST KIND OF GRAIN TO FEED PIGS--PRICES CONSIDERED

A Turtle Lake reader writes as follows: "I have twenty-four month old pigs. Kindly advise me what feed is the best to feed at the prices quoted and how much would you recommend feeding to them?"

"I can get feed barley for 65 cents per bushel, wheat screenings for \$15 per ton, bran and shorts at \$22 per ton. I have good macaroni wheat, value 60 cents per bushel. At present I am feeding them macaroni wheat ground and scalded with hot water after it has soaked for five hours."

Feeds at the prices quoted, our in-

PLEASANT GROVE HERD

Shorthorn Cattle, Poland China Swine

We are making a specialty this season of shipping spring pigs. By shipping when not too large the express bill is lighter. We can supply boars and sows not related. Write us for descriptions and prices.

WINN BROTHERS,
Redwood Falls, Minn.

quirer is feeding in the most economical way. There is no question but what macaroni wheat at 60 cents per bushel will produce more economical gains than the feed barley at 65 cents per bushel. It may be possible that the wheat screenings at the price quoted would give as good returns as the macaroni if it was a good grade.

We have practically no experimental data as to the value of wheat screenings for pig feeding, and for that reason, I do not know what gains could be expected. I however, am quite sure that the macaroni is the cheapest feed at these prices.

Experiments have shown that hard wheat and corn are equal pound for pound for pig feeding, while a pound of a good grade of barley is not quite equivalent to a pound of corn. Granting that a pound of barley would produce the same amount of gain as a pound of macaroni, which is, I consider, equivalent to a pound of hard wheat for feeding purposes, even tho our inquirer would not be justified in feeding the barley in preference to the macaroni wheat, because the macaroni costs less per pound.

WILLOW GLEN SHORTHORNS AND POLAND CHINAS.

HOME OF MINN. KEEP ON

He was first premium at Minnesota State Fair 1907. Have a few choice gilts for sale weighing 250 lbs. Bred to Minn. Keep On, at prices that will move them. We are building up as good a herd as can be found in the northwest.

Also have good bulls at right prices for sale.

R. F. D. 3., White Rock, S. D.

AXEL W. PETERSON,

JERSEYS

The Standard of Excellence in Dairy Cattle.

BERKSHIRES

The Standard of Excellence in Hogs.

A Few Pigs and Occasionally a Bull Calf For Sale.

Bosard Farming Company,

WARREN,

MINNESOTA

Pigs at this age should be fed as much grain as they will eat up clean within an hour after feeding. If, in case they put on fat too rapidly and you wish to grow them in preference to putting them on the market at a rather early age, it might be better to feed less. They will not consume more than four to five pounds of grain per day during the heaviest feeding period. When fattening for market a good rule is to feed them all they will eat up clean, before the next feeding time.

The method employed in soaking and scalding the feed is a very practical one, and cannot be improved upon.

Bran and shorts are expensive feeds at the present time compared with the others mentioned. If macaroni wheat was a carbohydrate feed, it might pay to feed some shorts, but macaroni wheat contains considerable protein, the essential constituent for producing growth.

Hundreds are using Personal, page 3.

Poultry Department

By MRS. B. F. WILCOXON.

NOTES ON POULTRYDOM

The success of the poultry business as compared with other enterprises is far greater at the present time, to say nothing of the pleasure and good health one gets in caring for the poultry where all the work is handled systematically. There are little things in the poultry business of minor importance, apparently, that if neglected will change success into failure. There is no other livestock business wherein punctuality and eternal vigilance are so necessary as in the rearing of poultry.

The subject of feeding requires much thought and study. Good results may be obtained from many different methods. There are differences of opinion as to the amount of feed used and the number of times a day that fowls are fed. What would be good advice to one might not be all right to another. One can surely form some opinion after a little thought and experience whether his chickens have had sufficient to eat or not, if feeding at a gain or loss.

There is more actual profit in small flock of fowls than in one so large that it is impossible to take care of them. Taking care of a large flock of fowls is not a child's play by any means. Better start now to weed out the flock. Dispose of every bird that does not promise to pay a profit this winter, keeping those of course that are wanted for breeding purposes next spring, unless valuable as a show specimen, do not keep a bird a day after it has permanently ceased to pay a profit.

No one who is a fancier ought to lose sight of the utility qualities of his birds that are bred for fancy. It may be necessary to lose some minor characteristic, but major ones should be well husbanded. In reading some of the poultry papers we are led to believe there is a great chasm, an impenetrable gulf between the fancier and the utility breeder. What is needed is more fanciers who fancy they can see many things in the production of the utility fowl for its own good. Let these follow their fancy and the days of the dung hill will soon be numbered.

Attend to giving plenty of fresh water. Next to pure air water is the cheapest thing we can supply our poultry. Do not forget that it must be supplied in order to get eggs. Reduce the drinking water part of your hens' ration and the egg yield will soon be reduced. On cold mornings add a little hot water to the birds drinking water and let it be put in a clean dish. Clean, fresh water, cool in summer and warm in winter, helps the filling of the egg basket.

There is a difference in the white and stay white feathers that are so much sought after in some of the white breeds. The way to get the everlasting white feathers is to breed from the fowls that have white feathers when the mating begins.

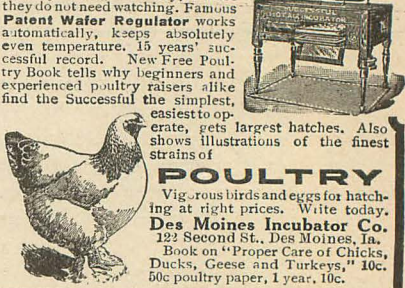
New healthy blood infused in the stock will mean a better physical condition of the offspring.

Quick sales make poultry profitable. Waiting for a market is a risk.

Successful Incubators Do Their Own Hatching

Save you time and worry, because they do not need watching. Famous **Patent Wafer Regulator** works automatically, keeps absolutely even temperature. 15 years' successful record. New Free Poultry Book tells why beginners and experienced poultry raisers alike find the Successful the simplest, easiest to operate, gets largest hatches. Also shows illustrations of the finest strains of

POULTRY
Vigorous birds and eggs for hatching at right prices. Write today.
Des Moines Incubator Co.
122 Second St., Des Moines, Ia.
Book on "Proper Care of Chickens, Ducks, Geese and Turkeys," 10c.
50c poultry paper, 1 year, 10c.



FREE! FREE! FREE!

My large illustrated circular. Send for it at once. It gives the lowest prices of both STOCK & EGGS, from my heavy laying strains, of the leading varieties of Standard-bred Poultry. Send me \$1.00 and I will send you complete illustrated plans for building the best and cheapest brooders on earth. Fresh Green cut bone, the best egg food known, at 3 cents per lb. Write your wants. I know I can please you both in price and quality.

DAKOTA POULTRY FARM

A. K. Johnson, Prop. Kensal, N. D.

11 varieties of standard bred chickens, ducks, geese, turkeys, peafowls. Send 4 cts. for catalog. J. J. Lienner, Dept. 11, Mankato, Minn.



All Leading Varieties Strictly Pure Bred CHICKENS, DUCKS, GESE, TURKEYS, EGGS and FREE TRIAL INCUBATORS at right prices. DON'T BUY till you see what we offer. A. I. References. Send 2 cts. for illus. catalogue. **CHANTICLEER POULTRY FARM**, Dept. 20 MANKATO, MINN.



Big Money in Poultry

Stock for sale at reasonable prices. Write for my catalogue of Poultry and Supplies.

MRS. B. F. WILCOXON,
Ft. Des Moines, Iowa.

WEBER'S POULTRY BOOK IS FREE

This valuable book must know to succeed with poultry. Tell all about 30 leading varieties, fine pure-bred Chickens, Ducks, Geese, Turkeys. Our fowls are northern raised with farm range from the shell up, which makes them very hardy, and fine in plumage. Fowls, Eggs and high grade Incubators at lowest prices. Send 2 cent stamp for postage only. **W. A. WEBER, Box 923, Mankato, Minn.**



LOOK HERE!

Now is the time to give me your order for eggs for hatching purposes. Excellent laying strain. **SINGLE COMB WHITE LEGHORNS**. Setting of 15 eggs, \$1.00.

I guarantee fertile eggs.

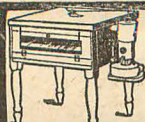
ALBERT T. BOE

Box 45 Greenbush, Minn.

All Boys Interested in Corn Culture Contest Should Read Personal on Page 3.

125 Egg Incubator and Brooder Both For **\$10**

If ordered together we send both for \$10 and pay freight. Hot water, copper tanks, double walls, double glass doors. Free catalog describes them. **WISCONSIN INCUBATOR CO., Box 110 Racine, Wis.**




INCUBATORS

An incubator is today as much a necessity in the poultry business as the poultry itself. I could not raise chickens without one. While the incubator is setting the hens are laying eggs instead of setting.

Incubators have been in use for thousands of years. The ancient ones were made of mud, in the form of a large oven and the heat kept up with a furnace fire. The ancients were extensively engaged in the selling of day-old chicks, yet this business is still in its infancy in this country. In order to have early chickens, we are obliged to use an incubator. We must study and work if we expect to make a success of incubation. We must look after all of the details, have a suitable place to locate the machine, have a room where the temperature will not change too fast.

I have found a dry cellar to be about the best place if it has access to plenty of fresh air, as this is very important in hatching chickens. It requires patience, attention, commonsense, and a certain amount of experience to run an incubator, even the most perfect and easily operated ones. The machine cannot do it all, the operator must do his part. Do not expect too much at first. If you fail to secure the best results at first, from your incubator or brooder or to produce as many chickens as you should, don't give up in despair, try again.

Did you ever think that the fault might be in you instead of the machine? Those who raise chicks with hens know the trials attached. You waste time to see whether they are in earnest or not. The incubator saves this time. It is willing to set when wanted. Now-a-days a hen's business is to lay eggs, and when not at that she should be recuperating for further work in that line. A hen cannot lay all of the time, but nature has arranged a time when during

molting she can have rest. Fully 80% of the eggs are now hatched in incubators. Buy a machine, don't worry with broody hens. Use commonsense in running it, and it will be a source of continued profit and satisfaction. People think that all the chicks that die in the shell are the result of some defect in the incubator, that they don't do that way when set under the hen, but they do.

I believe that an incubator can be so operated as to hatch all the eggs that any hen could hatch. The question is often asked, "Why do chicks die in the shell?" No one knows. Let us remember that it is not the hen that hatches the chicks, it is the heat, no matter from what source it comes. Cases are on record where chicks have been hatched in manure piles. Ostriches and reptiles deposit their eggs in the hot sand and leave them to be hatched the hot sand and leave them to be hatched by the sun.

After an egg has started to incubate the germ may perish at any stage from lack of strength or any cause. It is subjected to weakness the same as any other organism. The principal cause is attributed to the fluctuation of the temperature, such as overheating, or a lack of a sufficient amount of heat. A high temperature causes many chicks to die. This death may not be sudden, but they die before the hatch is complete. The stronger the vitality of the egg the more apt are chicks to hatch and live. The germs of life will not survive if started at too high or too low a temperature. Place two thermometers in the machine and see if the temperature in the machine is equal. Ventilation is also a cause of much trouble, a lack of it killing lots of chicks. Follow closely the instructions which come with the machine in regard to turning, testing and cooling the eggs.

Their handsome 100 page descriptive catalog of Field, Garden and Flower Seed is now ready for mailing and may be had for the asking. You will find their advertisement in another column. Mention this paper when writing.

We take pleasure in publishing in this issue the advertisement of Mr. W. A. Weber, Prop. of the Cedar Lawn Poultry Farm, at Mankato, Minn. Mr. Weber is an experienced poultry breeder, and has the endorsement of many of the leading citizens of Mankato and vicinity, and we advise all our readers who need any poultry or eggs this season to write and get his annual book, which gives reliable information in all branches of the poultry business. Look up Mr. Weber's advertisement elsewhere in this issue.

A COOK BOOK THAT REALLY HELPS

Every housewife can get one free

"The Enterprising Housekeeper" is the name of a cook book that contains, besides its 200 tested recipes, hints, helps and valuable information for the household. It gives illustrations, demonstrations, and instructions for using that indispensable kitchen utensil—the Enterprise Food Chopper. It shows how the housewife can, with very little labor, a few "left overs," and an Enterprising Food Chopper, produce a meal far out-rivaling many a laboriously prepared "feast."

There isn't a dry paragraph in the book. Everything is plainly and carefully set forth. If there is a woman reader of this paper who, as yet, hasn't obtained a copy of "The Enterprising Housekeeper" she should send for one at once. A simple request to The Enterprise Manufacturing Co., 249 Dauphin St., Phila., Pa., will bring a copy by return mail. They have agreed to send a copy free to each subscriber of this paper as long as the edition lasts.

A large stock farmer of the middle west, recently told the writer that he valued his evergreen windbreak at \$1,000 and that it had paid him dividends of from 20 per cent to 30 per cent per annum, for the past ten years, on this valuation. It did so by protecting his buildings and stock from the cold winter winds and saved him an immense amount of feed and fuel.

That the above facts are true is just beginning to be realized by many people and it is our prediction that there will be thousands of evergreen windbreaks planted all over the country, during the next few years.

Hundreds are using Personal,
page 3.

AMONG OUR ADVERTISERS.

We desire to call attention to the advertisement of J. F. Dayton, Nurseryman, of Waukon, Iowa, who has for Twenty-Eight years sold Trees directly from the Nursery to the Planter, thereby saving to the purchaser the expense of the middleman. If you want Good Stock, at Fair Prices, write for his list, it's Free.

At the present time North Dakota has but two tanneries, one of which is located at Lisbon. Otto Jenson, the proprietor, has had long experience in the tanning business both in his native country and in America. He has received a diploma at the hands of the late King Oscar. Those in the state who

have patronized him will testify to the excellent work he does and to his reasonable prices.

One of our representatives called at the A. A. Berry Seed Co. of Clarinda, Iowa, a few days ago and found them very prosperous and never were they in better position to serve their customers than this season.

They have their warehouses well filled with new seeds of 1907 growth and are very particular about seeing that no seeds are sent out to their customers but what are first class in every respect. Those who are contemplating buying seeds this spring will do well to bear this in mind.

Evergreens are as easily grown as any of our common forest trees if a few simple rules are followed in planting and caring for them. If you will write at once to The Gardner Nursery Company, Drawer 42, Osage, Iowa, they will send you 6 sample EVERGREENS two years old, entirely free of charge and with them will send the plain rules for planting and aftercare as referred to above. Mailing expense of the evergreens is 5 cents, which you can send or not as you choose. A postal will bring the trees and also their fine catalogue, containing colored plates and a mine of valuable information for fruit-growers. Write today, to above address.

Hundreds are using Personal,
page 3.

Shade Trees and Gardens.

C. B. Waldron, N. D. A. C., Editor.

The North Dakota State Horticultural Society held its fifth annual meeting Jan. 16 at Fargo. Its contributions to the Grain Growers' Convention, were of inestimable value to the state. Several valuable papers were read and were followed by lively discussions.

The growing demand for such topics as forestry, fruit and vegetable growing and other horticultural subjects was plainly observable to those in attendance. We can confidently look forward to a still better meeting next year. In the building of a home this work has an important place. The healthy growth of interest and enthusiasm is a good indication.

The officers elected for the ensuing year bear evidence of the stability of the society.

President, C. B. Waldron, Agr. Col., Treasurer, R. R. Thompson, Bottineau, Secretary, O. O. Churchill, Agr. Col.

Executive board: Clark W. Kelly, Devils Lake; L. A. Ueland, Edgeley; O. H. Will, Bismarck; E. W. Haseltine, Grand Forks; Mrs. Frances M. Devine, Mapleton.

The Horticultural Society will hold a summer meeting in Devils Lake on the Chataqua grounds July 8th and 9th.

"ACRES OF DIAMONDS"

O. O. Churchill, Sec. Hort. Soc.

The farmers of North Dakota are in need of a tree that in a short while will grow large enough to be used as a fence post, and that will resist rot when put in-

THINK IT OVER
What would you think of a weekly paper that was continually urging its readers to patronize the home merchants, while at the same time it was advertising some cheap mail-order house?

Surely that would be inconsistent, but we have observed some weeklies making combination rates with outside farm papers whose main income is from patent medicine and mail-order ads, while their own home state farm paper is completely ignored. Think it over.

to the soil. What tree this will be few seem to know. Many are looking for it. Farmers of North Dakota recognize that they must soon become breeders of live stock. North Dakota will some day be a great live stock state. One of the drawbacks against this industry is the cost of fencing. Wire is expensive. Posts cost from 15 to 30 cents a piece. A dollar does not build much fence.

We may not be able to reduce the cost of the wire very much, if any. One comfort is found in the fact that good wire once bought may not need to be replaced in a lifetime. The price at which posts can be bought for may not be very much reduced. Material for fence posts is being used up faster than it is produced. We must begin to grow the trees from which fence posts are to be made.

Pres. J. H. Worst tells of experience in setting out diamond willow posts a long time ago that seem to be as sound now as when put into the soil. Many farmers report the same experience. The diamond willow is hardy in all parts of North Dakota. It grows well along the streams. Soon the supply of these native grown willows will be exhausted. It would doubtless be wise to plant some of these on some low ground to produce enough for one's own use for fence on the farm. There may be other trees that may be more suitable for this purpose but we are not familiar with them. Any one who has had experience with any fast growing trees for fence posts should make it known thru the columns of the North Dakota Farmer.

TREES THAT GROW
Apples 5c, Peach 5c, Plums 12c, Cherries 17c. Best quality, good bearers, grafted stock, not seedlings. Concord Grapes \$2.50 per 100. Forest Tree Seedlings \$1.00 per 1,000 up. We pay the freight.

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It's the most original seed book published, and is gladly mailed to intending purchasers free; or remit 10c and get lots of remarkable farm seed samples, worth a little farm to get a start with.

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La Crosse, Wis.

High-Grade Flower Seeds.
20 PACKAGES FOR 10c.

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Phlox, 10	Sunflower, 2	Marigold, 13	
Sweet Peas, 2	Zinnia, 12	Petunia, 10	
Salvia, 2	Larkspur, 6	Sweet Alyssum, 10	
Balsam, 10	Verbena, 10	Nasturtium, 10	
Pinks, 10	Forget-me-not, 10	Calliopis, 8	
	Sweet Mignonette.		

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F. H. SQUIRE

Kenmare, - - - N. D.

THE IMPROVED POTATO

By Guy E. Mitchell

The average potato of today would have been looked upon half a century ago as a work of magic, and, the improvement of this useful tuber has been magical—another instance of the value of systematic plant breeding and experimenting with nature. It is fortunate for the human family that there are always a few investigating natures who are never satisfied to let well enough alone. If we were all so complaisant as the average individual, or perhaps lazy, there would be little improvement. The potato, of course, is an "old stager" and even in the early part of the last century, there were a number of "improved" varieties; but they would not be so recognized now. About the middle of the century, however, the introduction of new wild strains from South America marked the beginning of a distinct epoch in the evolution of the plant. Just as the outbreak of the Civil War, a grower of one of these South American seedlings preserved a large seed-ball from one of his plants and pinned it up against his window until it was old and dry, when, fortunately for the potato industry of the United States, he gave it to Mr. Albert Breese of Vermont. This gentleman had saved seed from his own plants but he is stated to have "felt it in his bones" that something would come out of this particular seed ball. He planted the seed the following season; and obtained a great variety of plants—some had many tubers and some had none, some had large ones and some had small, some bore round ones and some bore long ones. But one, and it ripened early, far surpassed all the others, it was the greatest potato in existence and he named it the Early Rose. The first seed tubers sold of this variety brought fabulous prices and it immediately became the leading variety in America. It is still a leader over a considerable portion of the country.

TREES! TREES!! TREES!!!

C. B. Waldron

The rapid development of the northwest has been due to the ease with which men of small means have become established in comfortable homes and in remunerative industries, particularly that of agriculture.

The whole story, wonderful as it is, can be told in a word—cheap lands and cheap building material. On account of

the high intrinsic value of a large proportion of the lands of North and South Dakota and Minnesota and the small amount of labor and expense required to bring them into a state of profitable cultivation, it is doubtful if any region of equal extent was ever entered upon and possessed by man with as little uncertainty and privation and with so large an assurance of success.

There were pioneer days to be sure with all the incidents that accompany pioneering but the time was short until the pioneer had valuable products to sell and had succeeded in establishing himself upon a comfortable basis.

To what extent do the conditions exist

today that made all this progress possible only a generation ago?

In the first place our lands do not today respond to the meager tillage that was sufficient to bring good results a generation ago. It takes nowadays not only good seasons but good farming as well to secure the returns that formerly seemed to be dependent upon the weather alone.

Is the second place, the days of cheap forage for stock have practically passed away over the greater part of this region. Ten dollar hay is now no rare thing where a few years ago its valuation was based only upon the cost of cutting and stacking. And then the cost of build-

SIX HARDY BLIZZARD-BELT FREE EVERGREENS

6 TREES

To prove that our EVERGREENS are HEALTHY, HARDY and Vigorous, we offer to send SIX fine two-year-old trees, entirely FREE OF CHARGE, to every property owner who will answer this advertisement. Mailing expense 5 cts., which send or not, as you please. A postal will bring them and our catalogue which contains many COLORED PLATES of our BLIZZARD BELT FRUITS; SPECIAL BARGAINS and a mine of valuable information for fruit growers. We want to become acquainted with you, and it will pay you to get into touch with our HARDY "BLIZZARD BELT" stock and our liberal manner of doing business. THIRTY-EIGHT years' experience in growing HARDY "BLIZZARD BELT" trees. Write to-day.

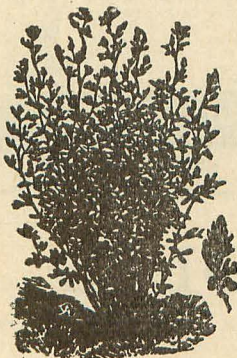
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Seed Corn, Oats, Barley and Millet Seed

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When Ordering Any Kind of Garden or Field Seeds Write to the
"GRAND FORKS SEED CO.,"

Handlers of only Northrup, King & Co.'s Sterling Seeds. We buy Timothy, Millet, Flax, Barley, Speltz and Wheat.

ing in this region has practically doubled in the past ten years. Neither must we lose sight of the fact that larger and better buildings will be required in the future than in the past.

It is generally conceded that the days of exclusive grain farming are practically numbered. With the inevitable advent of diversified farming, buildings for stock, forage and roots will all be a necessary part of the farm equipment. With the change in farming methods that the next twenty years will surely bring, a very great increase in the number and extent of farm buildings will be a necessity.

With a systematic rotation of crops

and the amount of stock naturally accompanying that method of farming fencing becomes a necessity. This again means timber and a farm of the future will consider a permanent supply of timber for fencing and similar purposes a necessity. The matter of fuel in North Dakota is a subject that cannot be passed over lightly. In spite of our extensive deposits of lignite by far the greater portion of our fuel comes from other sources.

(Continued in March Number)

Hundreds are using Personal,
page 3.

VEGETABLE GARDEN 50¢

Only high-grade, tested Northern Grown Seeds. You get one package each: Beet, Carrot, Cucumber, Lettuce, Parsnip, Musk Melon, Early Sweet Corn, Water Melon, Turnip, Wax Beans, Pole Beans, Parsley, Early Radish, Winter Radish, Onion, Pepper, Pie Pumpkin, Cabbage, Summer Squash, Tomato. Prepaid for 50c with booklet and free package Pansy Seed. **Minnetonka Seed Gardens** Box 132, Excelsior, Minn.

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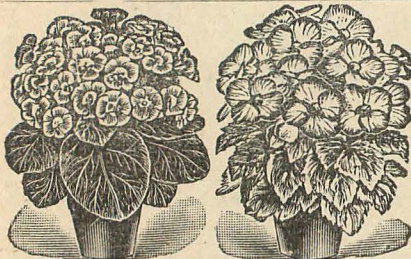
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STERLING SEEDS

Up in the Northwest is a firm, now 24 years in business, which sells good seeds. The Minneapolis Daily Times, Jan. 15, 1905, said editorially:

"It's not too much to say that through the new and improved varieties of seeds introduced by Northrup, King & Co. during the past twenty-one years, millions of dollars have been added to the permanent value of Northwestern farm lands. Of such firms as Northrup, King & Co. it may truly be said, 'They deserve well of the state.'"

(That's how we stand at home.)

Our Minnesota Grown Grass, Field & Clover Seeds

produce larger crops than seed from any other source. Our Sterling Brands represent the highest quality and purest seed obtainable anywhere—at any price. Samples on application. Large magnifying glass to determine quality, free to purchasers. See catalog, page 101.

Vegetable & Flower Seeds

We send free to buyers of \$1.00 worth of seeds from our catalog an extra dollar's worth of the varieties we consider to be the best of their class. See catalog, page 3.

The Marvelous Perfume Plant

This is one of the most wonderful plants earth holds for our delight. It opens in the evening and exhales a delicious and far carrying fragrance—perfuming the whole garden. Easily grown in any climate and on any soil. For 10 cents we will mail a full size packet of seed of the perfume plant.

Our 1908 Catalog

A seed catalog is a picture of the firm issuing it. Ours is faithful, informing and straightforward. That's the kind of business we conduct. Write today and tell us your seed needs—we can supply them. Send for catalog anyway; it's free. **TRADE MARK**

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SEEDSMEN
68 SEED BLDG., MINNEAPOLIS, MINN.

INQUIRIES ANSWERED

NEW BREAKING

I desire to ask the following questions thru the columns of your valuable paper:

1st. I have about 20 acres of land broken last May and put into flax. Do you advise plowing this land in the spring, or would it be better to disk it and sow without plowing?

2nd. What would be the best crop to grow on this land? Have thought of sowing oats.

3rd. What is the feeding value of mangles compared with corn?

Velva, N. D.

L. R. C.

Answer

Something will depend upon the condition of the sod. Unless the old sod is well rotted, it would not be advisable to plow up the sod and sow upon this. Farmers have reported better results by disking for the first year and sowing directly upon the disked land. On the other hand, if the sod is well rotted so that it will pulverize, it might be safe to plow. Considerable, of course, would depend upon the character of the season.

Probably the safest crop to grow upon this land would be oats, or, possibly, barley.

Mangles can hardly be compared in feeding value with corn. Corn is a highly concentrated starchy food and has greater feeding and fattening value. On the other hand, mangles have not. They have relatively a low value, but their influence in aiding digestion and assimilation is probably out of proportion to their true feeding value. In fact, during the winter months animals thrive best when they receive an amount of green or succulent food, and mangles serve a good purpose, as do other roots.

CEMENT VS. WOOD POSTS

Would you advise one to make cement posts where we have plenty of good sand and gravel? Or, is it more satisfactory to buy wood posts at 15 to 20 cents a piece?

Velva, N. D.

L. R. C.

Answer

Cement posts have been to a considerable extent recommended and used in parts of the country during the past few years. Just how successful they will prove is not known at the present time. There is no reason, however, if they can be produced on the farm reasonably cheap, and where there is an abundance of sand and cement, but what cement posts may successfully take the place of wood posts, for if well made they should last a life time. It would probably be safer, at first to experiment with a few posts to determine just how they behave under North Dakota conditions.

DON'T BE FOOLED

Into buying eastern and southern grown nursery stock that won't grow in the north.

The Hankinson Nursery Company

Sell northern grown trees and guarantee them, replacing free. Write for price list. Grounds and packing house one and one-half miles west of town. Live agents wanted.

Hankinson Nursery Company,

HANKINSON,

N. D.

AMERICAN SOCIETY OF EQUITY.

CHAS. U. PIERSON, Casselton, N. D.

Has the American Society of Equity been the means of helping the farmers by advancing the price on the products of the farms this season?

It appears that the farmer has really been benefited thru the efforts of the A. S. of E. Figures taken from good authority go to show that about 57% of the wheat was held back on the farms last fall at thrashing time, despite the fact that the local markets paid about \$1.00 per bushel for wheat.

The controlled market idea as advocated by the A. S. of E. caused the farmers to hold the above percent of wheat back on the farms; had that not been the case, judging from the habit of dumping the crop on the market as the grain was thrashed in former years, we are led to conclude the farmers would have put the plan into practice last fall. Such being the case with a short crop for 1907, wheat would have been worth about 15 cents to 18 cents less per bushel than was paid the farmers for their wheat at thrashing time. Had the 57% which was held back on the farm last fall been put on the market at the time the 43% was sold from the machines, it can easily be determined what the result would be as affecting the price to the farmers.

Some there are who will say controlled marketing of farm products can not help the farmer, but it is an evident fact that when we consider 30 days consumption of food stuffs will empty every Terminal Elevator and cold storage warehouse of food supplies in the United States, especially when the great elevators are ready to be filled up from the new crop in the fall of the year that with the supplies in the hands of the farmer, it would appear that the producer would be in a position to demand and compel an equitable price for his product, regardless of the dictation by the middlemen. Food, we must have, and we are compelled to depend on the farmer to provide the food. We may possess millions in Stocks and Bonds that with the interest thereon, will net us a fortune each month in the year, or we might have as many gold dollars as Rockefeller. We would be compelled to starve if the farmers would decide to hold back from the market all the food stuffs in his possession for a period of 60 days. The rich would starve to death in their Gilded Mansions as readily as the poor man in his humble cottage. And who will deny the producer the right to say what he is entitled to receive for what he has to sell.

The plan of the American Society of Equity is to educate the farmer how to

hold back on the farm a certain percent of his crop each year and only sell as much as the market demands, thereby not creating an over-visible supply of food stuff as has been the system practiced by the farmer in former years, as the plan to be adopted by the A. S. of E. does not interfere with the affairs of classes and industries doing a legitimate business. We do not understand why the plan should be objected to by any one unless it should be the gambling fraternity, who are making fortunes in fixing prices for the farmers to sell their products at. We expect that class to kick against any plan that affords the farmer a chance to set a price on what is his own, what he has produced by patience and hard toil. We admit that the gambler in prices of farm products under the controlled marketing plan will be compelled to engage in a legitimate business or go out of business altogether.

The power to eliminate the unfair methods of speculating on the price of products is in the farmers' hands if they choose to use it to that purpose, but to exercise the power they possess, the farmers must become organized, that they may co-operate with each other in marketing their products and demanding a certain minimum price for what they have to sell.

The organized capitalists such as the International Harvester Company use the co-operation method of regulating the price on the machinery, they eliminate competition entirely and prohibit overstocking the market with their goods. They are in a position to set the price on their manufactured articles and demand it, and who pays them their price? The farmer. We say the farmer because he consumes 90% of the manufactured goods sold on the market by the International Harvester Company. Few people are aware of the far reaching resources of this gigantic trust, which was organized in 1902. There were at that time about ten separate companies engaged in the manufacturing of farming machinery. At that time an effort was made to get these different companies together to consolidate them. The effort was finally successful and eight of the constituent companies went into the International Harvester Company trust which was organized under the laws of the state of New Jersey, with a capital of \$120,000,000 about the same time there was organized the International Harvester Company of America with a capital of One Million dollars, under the

laws of the State of Wisconsin by the same men. The stock of the smaller company being held by the large one. It was clearly the purpose of this combination to evade the federal law by having the manufacturing company organized under the laws of one state and distributing or selling company organized under the laws of another state. At the time this monopoly was created, the average price of a self binder to a farmer in this part of the state was from \$90 to \$105. Today the machine costs the farmer from \$125 to \$145 and we understand the monopoly is to put the price up to about \$150 for an eight foot binder the present year.

The International Harvester Company obtained control and a monopoly over most ingredients entering into the manufacture of binding twine and that is not all, they have secured a monopoly of the harness business and the control over several manufacturing establishments devoted to the making of gasoline engines, cream separators, as well as other necessary articles that the farmer must buy. All these articles are advanced in keeping with the price that the trust has put on its Harvesting Machinery.

In North Dakota we produce over \$100,000,000 worth of grain every year. The farmers are obliged to purchase near 10,000 binders every year and with the advance in price for binders since 1902 from \$90 to \$125 and \$145, it can easily be calculated the amount of tribute that the farmers must pay to this monopoly. It is the purpose of the International Harvester Company to secure control of every implement the farmer will have to buy to carry on his business, including wagons, buggies and plows. Mr. Farmer, is it not reasonable to suppose that if organization to co-operate will work so satisfactorily for the International Harvester Company, it can be made to work for your interest if you will do as the monopoly has done, organize and stick together.

It will cost the farmer a small fraction to become organized compared to what it cost the International Harvester Company and the capital of the International Harvester Company is but a drop in the bucket compared to the power and wealth in the hands of the farmer, if they will co-operate.

The American Society of Equity offers the correct plan for the farmer to organize. It is inexpensive compared to the great benefit the farmer may derive thru the system of co-operation as outlined by the A. S. of E. The Society has something over 90,000 members, among that number are the leading farmers of this country who can think and act for themselves without depend-

ing on the other men to do the thinking for them.

By patience, and persistence, on the part of the leading farmers who are interested in this movement the Society will succeed if the members will support it, otherwise it will not make any headway. At the present time it is very necessary that the members pay up their dues, if they do so they will place the Society on a solid foundation. It will afford funds to enable the Society to carry on its work of obtaining an equitable price for what the farmers have to sell by establishing facilities at terminal points for the storage of farm products instead of passing it into the hands of middlemen or trusts, to obtain equitable rates of transportation, to secure legislation in the interest of agriculture, to secure new markets and enlarge old ones, to report crops in this and foreign countries, so that the farmers may operate intelligently in planting and marketing, to promote social intercourse, and help build up a marketing machine for the producer so that in time he may share in the profits now made by those who control all our market facilities.

Arrangements have been made for Independent Selling Agencies for your crops at Minneapolis and Superior. Mr. P. E. Cooper is the local manager. He is under \$25,000.00 surety bonds, more than twice as much as any other commission firm in Minneapolis. He is prepared to handle grain for the members of the American Society of Equity and he should have the co-operation of all Equity members to make this exchange the greatest marketing machine in existence, help make the business a Million a month, this will establish a credit to your integrity, commanding respect from all commercial industries, showing the powerful influence of the Equity Organization. The exchange has made most excellent showing covering the first three months it has been in operation. They did business in November to the amount of \$26,969.65, in December to the amount of \$55,295.97, in January to the amount of \$102,770.97. It is probable that the members in North Dakota do not realize the Equity exchange is doing so much business for the Society. If they will wake up and become interested they will learn a lot more about what is being done by the Society to establish a marketing machine for the farmer. If you want to **break the grain** combine you must ship your grain to your own agency. Directors of Farm Elevators, see to it that the managers of your elevators ship your grain to the Equity Exchange, the manager of the agency at Minneapolis and Superior is Mr. P. E. Cooper, 10

Flour Exchange, Minneapolis. If you desire Wisconsin inspection and grading, simply have your bill of lading endorsed "Wisconsin Inspection Demanded" and you will get it that way.

In conclusion we would caution the members of the A. S. of E. to stand by your organization. It is of more value to you than you think. You do not as yet realize the power you hold if you but hang on to the reins and not let go. The fact that little differences occurred at the National Headquarters between the National Officers and certain irregularities on the part of Mr. Everitt made it impossible to reelect him as President of the Organization. It was unfortunate that such was the case, while the Society was in its infancy, as it seems to cause a feeling of indifference on the part of a few members in some of the Local Unions. This is all wrong. The predominating principle of our National Liberty is to believe in majority rule. Out of about 300 delegates at the convention about 291 declared for electing a new set of National Officers, such a great majority should be sufficient proof to satisfy any fair minded person that the action taken by the convention was for the best interest of the Society. The A. S. of E. is now in the hands of honest men who have always lived on their own farms. They have been active in the organizing work of the Society since its beginning and they have education with experience. They know what the farmer requires and the Society is safe in their hands. The organization is now on the threshold of success and to falter in our devotion to seek liberty for the farmer, means disruption of the only society that can free us from the unfair methods practiced by organized trusts to rob the farmer of what is rightly his own. Let us get together and do our duty as citizen farmers, for the protection of our rights. We can do so, if we try. Let us pay up our dues which is a small amount of expense for one individual member, but it is enough to carry on the work if we will all pay our dues. If 20,000 members pay up their dues it will establish the best paper in the United States for the farmers to read, pertaining to the subject of Equity, and controlled marketing. You want an official paper to keep you posted as to what has been done, what can be done, and what will be done by your society to establish equitable prices for farm products; instead of teaching intensified farming, we will leave that part of the work to other farm papers. The subject of controlled marketing, official crop reports, and matters pertaining to the work of organization, is enough to fill the columns of the official paper, without taking up the subject of productive farming. We expect to receive

the support of other farm papers and we are not to be opposed by them as was the case before we elected a new set of National Officers. With the support we are receiving from farm papers, if the members will be loyal to the Society, we will soon be powerful enough as farmers and producers to control prices and bring prosperity to all.

The Fargo Meeting

The members of the American Society of Equity and their friends who were in attendance at the Tri-State Grain Growers' Convention held in Fargo, N. D., Jan. 14th. to the 18th, manifested a great interest in the meeting. About one thousand farmers were in attendance. A special meeting was called by the State Officers of the A. S. of E. in Aaker's Hall, Friday evening Jan. 17th, at the earnest request of the members, for the purpose of hearing explained the actions taken by the delegates at the recent National Convention of the A. S. of E. held in Indianapolis, Indiana, October 22-26th, '07, when they decided it was the best policy to elect a new set of National Officers. The following resolution was adopted:

Whereas, we as members of the A. S. of E. in N. D. have heard explained by Mr. O. G. Major, M. S. Blair, Chas. U. Pierson, delegates at our late National Convention, the conditions that were found to exist at National Headquarters of this Society up to and at the time the Convention convened, which proved to be the reason why the delegates almost unanimously decided that for the best interest of the American Society of Equity it would be a wise plan to elect a new set of National Officers.

Whereas, it was impossible to allow Mr. Everitt to have complete editorial control of the Official Organ, and that he refused to make satisfactory terms with the National Board whereby he would continue to publish the Official paper for the Society,

Resolved, that we approve of the action taken by our recent National Convention and sustain the new official paper the "Equity Farm Journal" and refuse to take the "Up-to-Date Farming" any longer. We further resolve to pay our dues to Mr. O. D. Pauley thru our State Union and recognize but one National Headquarters as controlled by the officers elected at the regular Convention.

Signed by the following representative members from the various parts of the state.

H. O. Brown, Brinsmade, N. D.
C. U. Pierson, Casselton, N. D.
C. H. Newton, Harwood, N. D.

Hundreds are using Personal,
page 3.

O. G. Major, Hope, N. D.
 R. E. Anderson, Hope, N. D.
 M. S. Blair, Ojata, N. D.
 Gust Werner, Medina, N. D.
 H. A. Page, Carrington, N. D.
 Edw. Stolzman, Everest, N. D.
 Iver Johnson, Aneta, N. D.
 Charl Johnson, Hope, N. D.
 C. F. Rokaw, Wheatland, N. D.
 Jno. F. Zimmerman, Addison, N. D.
 Herman Aendt, Galesburg, N. D.
 H. Halvorsen, DeLamere, N. D.
 Geo. A. Wise, Fargo, N. D.
 John Schultz, Gardner, N. D.
 Karl Lenda, Cooperstown, N. D.
 John Berkland, Finley, N. D.
 A. K. Speer, Carrington, N. D.

O. G. Nelson, Hatton, N. D.
 Frank McKenzie, Wild Rice, N. D.
 Geo. Gunderson, Walum, N. D.
 O. P. Rognlie, Minnewaukan, N. D.
 Jos Trotter, Wild Rice, N. D.
 Neil McKay, Hunter, N. D.
 J. W. Johnson, Wild Rice, N. D.
 Henry O. Hendriksen, DeLamere, N. D.
 Swan Overlee, Mapleton, N. D.
 R. O. Solli, Maddock, N. D.
 Jno. Dobrinz, Mapleton, N. D.
 M. K. Nilson, DeLamere, N. D.
 C. A. Newman, Oriska, N. D.
 O. L. Gorder, Landa, N. D.
 C. G. Gardner, Bottineau, N. D.
 Floyd Jones, Sheldon, N. D.
 O. P. Bakke, Mayville, N. D.

E. M. Granlund, DeLamere, N. D.
 Martin Hofstrand, Brinsmade, N. D.
 Paul Hans, Davenport, N. D.
 N. Magnuson, Souris, N. D.
 Fred Pronorost, Wild Rice, N. D.
 Jno. Yokom, Mapleton, N. D.
 Albert George, Plainfield, N. D.
 C. Hofstrand, Brinsmade, N. D.
 Henry Geerdes, Davenport, N. D.
 Wm. Hudson, Gardner, N. D.
 E. W. Everson, Walum, N. D.
 Peter Madison, Argusville, N. D.
 Hans Moen, Harwood, N. D.
 Thomas Pendray, Jamestown, N. D.
 Albert J. Myhre, T. Fuglestad, Joel
 Anderson, S. E. Ulsaker, Jno. O. Bye,
 U. O. Valan, F. L. Richter.

OILS, PAINTS, AND PAINT PIGMENTS.

PAINT LEGISLATION

Remarks by Prof. E. F. Ladd before the
 American Society for Testing Materials
 at Atlantic City, N. J.

(Concluded)

The Kind of a Law

What shall be the nature of the proposed paint law,—one that shall be fair alike to producer and consumer? Shall we have a law which recognizes no difference in value for the several paint

pigments; one which places all pigments on the same basis; a law which recognizes in chalk the equal of zinc oxide, or in zinc lead white with its arsenic, antimony, zinc sulphate and soluble lead sulphate (which has its serious faults), the equal of old Dutch process lead? No honest manufacturer or painter believes that these pigments are of like value as ingredients for ready-mixed house paints. Why then should we demand that each be legalized and made of like value under the law? Perhaps

because we have not looked into the future and discerned the competition that must be met, and successfully answer the claims made effective by sanction of law. The honest manufacturer knows that the basis of the best paint he has been able to produce is white lead and zinc oxide, even tho he may have been able to add with advantage some proportion of other constituents. Many will differ with him regarding the proportion of pigments; none I believe will successfully assert the equal value of all pigments, or of all vehicles for paint.

If all pigments are not of like value, then we must turn to some one or two pigments which shall serve as standards of comparison when these standards have been properly tested and accepted. Is the concensus of opinion, both public and individual, to be followed? If so, then our standard of comparison is still white lead and zinc oxide. Shall these then constitute the basis on which our law shall be built up? Can we find anything better? And why should we not have a standard for comparison in paints the same as is found for every preparation in the United States Pharmacopoeia, or, the same as there are standards well recognized for commercial fertilizers? If there be added to or substitute into this combination any other pigment why should not the public be informed of the fact? Or, if water or benzine be added in place of some constituent in the vehicle, why should not the public know of this substitution?

A few have maintained that a law should be such as to exempt from labeling only those statutory paints wherein the white lead constitutes not less than 50 per cent of the pigment; others would allow 5 per cent of truly inert material like barytes or silica without requiring labeling.

The North Dakota Law

The legislators of North Dakota recognizing the necessity for a paint law

Boys Interested in Corn Culture Contests Should Read Personal on Page 3.

What Will It Do?

This is the question for you to ask when buying paint.

There are too many paints on the market that have no merits except that they sell at a low price or are made of S. P. Lead or Lead and Zinc.

What you want in paint is

- 1st.—DURABILITY
- 2nd.—COVERING CAPACITY
- 3rd.—APPEARANCE
- 4th.—COST PER YEAR TO PROPERLY PROTECT THE SURFACE.

The Heath & Milligan Paints

possess the above qualities and insure BEST RESULTS

ASK OUR AGENT OR WRITE TO

Heath & Milligan Mfg Co

Paint and
 Color Makers



Chicago
 U. S. A.

came to the conclusion that all paint pigments were not of like value, and have so formulated their belief and expressed it as a law.

Paints composed wholly of pure linseed oil, pure carbonate of lead, oxide of zinc, turpentine, Japan drier, and pure colors, need not be labeled, while all others must be labeled so as to show their true composition. North Dakota has thereby established the standard long recognized, but in so doing they have barred no paint from the state; they only ask that you tell the truth to the public with regard to the composition of the paint,—that you place your name and address upon the package as a guarantee of your own faith in the product which you desire to sell in the state. Our experience under the North Dakota law convinces us that the principle therein enunciated is the correct one, safest alike for safeguarding the interests of the consumer and the honest manufacturer. Industries employing chemists, engineers or experts to look after their interests may well require and have special paint products for their particular purposes, but the public at large who use mixed paints for house painting demand and are entitled to legislative protection, since in no other way can their interests be properly safeguarded.

It is true that other basic or statutory pigments may be best for special purposes. Possibly a great railroad may prefer that its paint should chalk and wash, in order that the cars may appear cleaner or whiter than would be the case were paints employed that do not possess these properties. Other pigments may be far better for structural steel works, light-house, bridges, breweries, etc., but we have here to deal largely with house paints, used by those not in a position to know what is being sold often under deceptive captions.

Certainly the public will be misinformed if they follow the claims of the makers of these paints and, in the light of recent experiences, we cannot wholly blame them where they assume an attitude of doubt. My two years' experience in enforcing the North Dakota law, and in experimenting with paints, has given me less faith in the value for house paints of the pigments of Class A, than I formerly had, and unless they are very materially improved, I predict that, in the very near future, they will be less extensively employed in house paints than is the case at the present time.

The Form of Label

Whatever the law, it is important that a uniform labeling feature be provided for, and North Dakota has to recommend the following as affording the information most sought for, and with least likelihood of evasion. This is not

intended to convey information regarding an ideal combination but rather indicates the form for a paint that should be labeled.

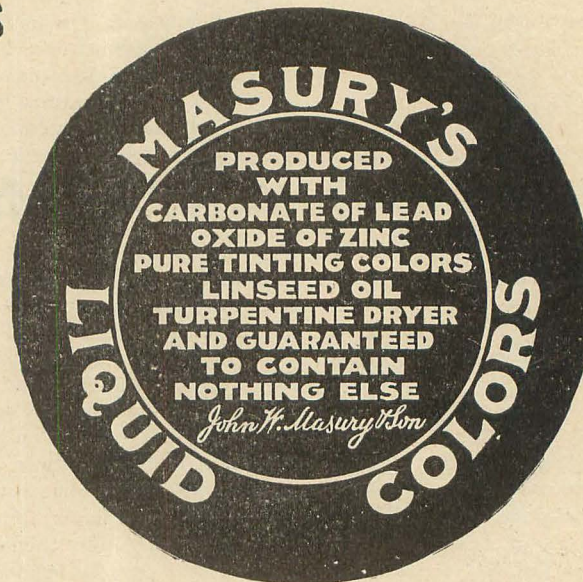
Contents of can.	gal.	lbs.
Percent of pigment, by weight	62	
Percent of thinner or vehicle,	38	
	100	

The thinner or vehicle is composed of:

	Percent
Linseed oil	70
Turpentine	5
Japan drier	5
Benzine	10
Water	10
	100

MASURY'S
HOUSE
ARE

THIS
ON



LIQUID
PAINTS
PURE

LABEL
EVERY
CAN

100 PER CENT DURABILITY.

With a record of sixty-five years is the guarantee that

MASURY'S PURE LIQUID HOUSE PAINTS

Offer for Durability and Economy.

THE STANDARD OF EXCELLENCE FOR SIXTY-FIVE YEARS

NEW YORK JOHN W. MASURY & SON, Manufacturers. Paints, Colors and Varnishes. ST. LOUIS CHICAGO MINNEAPOLIS
NORTHWESTERN BRANCH, 320-322 Second Ave. No., Minneapolis

The Cheapest Paints

in the long run are

Minnesota Paints

They last longest because they are made from PURE White Lead, PURE Oxide of Zinc, and PURE Tinting Colors and Driers—but most of all because they are mixed and ground in the PURE LINSEED OIL that is used in all MINNESOTA PAINTS.

"It's in the Oil." PURE LINSEED OIL is the only oil that has ever been discovered that can be used in the manufacture of a good paint. The oil is the heart and the life of all paint. Without PURE LINSEED OIL, paint of any kind will dry up, scale off and blow away.

We make our own oil from selected Northwestern flaxseed. It never leaves our possession until it is mixed and ground in MINNESOTA PAINTS.

For 37 Years "The Best Paints Made"

They are put up in full Government Measure cans, look better and last longer than any paint made.

"A Special Paint for Every Paintable Surface"
Inside or Outside.

Some dealer in your town sells them—we'll tell you who. Write for interesting Booklet "Practical Painting" and Color Cards.

Minnesota Linseed Oil Paint Co.
1101 Third Street South, Minneapolis, Minn.



Composition of pigments:

	Percent
White lead	25
Sublimed lead	20
Zinc oxide	30
Calcium carbonate	6
Barytes	15
Color*	4

In mixed paints it is important that we have full measure, while in white leads and paste paints, weight will be more important. It is desirable, however, that we have shown the percent of pigment and vehicle, as will be readily understood by those who have made a study of the commercial features of this problem. The public understand the magnitude of any fraud better where the pigment and vehicle are separated, and where each is separately expressed in percent as shown above.

With regard to color,—when a pure product is used, it is sufficient to name the color pigment, but where inferior colors are employed it is necessary to have a full analysis of the color pigment so as to prevent the heavy adulteration sometimes introduced by this means.

Let me cite an instance: two paints, one required to be labeled because there had been added 10 per cent of English cliffstone, the other not labeled because made from lead, zinc, and color. Twenty percent of the color was used, not more than 7 per cent of which was real color, the balance being clay, lime, etc., not properly a constituent of the color. This paint was in reality intentionally seriously adulterated, and must needs be labeled so as to show the composition of the color pigment.

National Paint Legislation

What is needed to prevent fraud in paints at the present time is National legislation and this would serve as a public educator to acquaint the people with the relative merits of the several pigments now employed in paints as well as with the character of the vehicle. Such a law, with the experimental work that should be conducted in connection with its enforcement, would show the people how to use these various pigments in paints in order to secure the greatest efficiency. A national law would prove of great benefit to the honest manufacturer, who is now struggling to meet the unfair competition from the sale of the many cheap paints being made by "mixers," who have no knowledge of the paint business, and when their product has been exposed will find it necessary to go out of the business. The cheap, water emulsion paints of chalk, barytes, etc., now so largely sold by the department stores would, in some measure at least, be replaced by a better product,

*The color is composed of (name of ingredients and composition, if necessary, to be given).

and the mail order houses would be unable longer to impose upon the public, for education would, in a large measure, correct many of the existing evils. With a good national law as a basis the states would then follow its general form, and there would be a minimum amount of confusion and annoyance to the manufacturer in the labeling of his paints as they go into commerce.

Experimental Paint Tests

Before we can get on a solid and correct basis for classifying paints we must have become familiar with all the conditions under which paint is used in housepainting. Having carefully studied the paint question during the past two years, North Dakota has led in this important work of paint testing.

How do paints behave on the walls of buildings, or under like conditions? To answer this question there has been planned, and in part executed, in North Dakota, probably the most extensive and comprehensive series of experiments of this nature ever undertaken in this country. Our experimental testing plant is:

First, experimental fences, aggregating 275 feet in length, 18 inches above the ground, 5 feet in height, and the whole divided into 5-foot sections.

One side of the fence is clapboarded, using two types of lumber on each section, a soft pine and Washington cedar. The opposite side of the fence is palin-boarded, using soft and hard

Test The Paint Before Using It.



The costliest materials form only about one-third of a painting bill. The rest of the money is paid for labor. A mistake in the paint means not only the loss of what the paint cost, but also the loss of the entire expenditure for putting the worthless stuff on the building. It is quite worth while to *test the paint before using it.*

The best paint is that mixed from *Pure White Lead* and *Pure Linseed Oil*, with the particular needs of your building, wagon or implement in view. There is a simple test which anyone can make.

White Lead is made from metallic lead and can be changed back to that metal by applying great heat. Any adulterations, such as chalk, barytes, or other counterfeits, mixed with the White Lead, prevent the appearance of *any* metallic lead, no matter how slight the adulteration. Therefore, if the sample yields drops of lead, it is pure; if not, it is adulterated.

We Will Send You a Blowpipe Free

We want property-owners to know how to test paint. We welcome the test of our White Lead and will furnish free a blowpipe (a little instrument necessary to secure intense heat) to anyone who is in earnest about knowing good paint from bad. Everything necessary for the test, together with beautiful booklet, will go to you at once. Write for *Test Equipment* 38 Address

FULL WEIGHT KEGS

The Dutch Boy Painter on a keg guarantees not only purity but *full weight* of White Lead. Our packages are not weighed with the contents; each keg contains the amount of White Lead designated on the outside.

NATIONAL LEAD COMPANY
in whichever of the following cities is nearest you:

New York,	Boston,	Buffalo,
Cleveland,	Cincinnati,	Chicago,
St. Louis,	Philadelphia (John T. Lewis & Bros. Co.),	Pittsburgh (National Lead & Oil Co.)



pine; therefore, there is afforded a variety of material on which to test each paint.

The fence is most substantially constructed, the cedar posts well set in cement, the top and ends well capped and the base protected from moisture below. To each of these sections three coats of paint are applied, and three types of each paint are under experiment. These are: white, colonial yellow, and lead gray. Each section of the fence will be repainted as there is need for the same and it is proposed to continue the experiment for eight or ten years.

Two classes of experiments are now under way. We are testing first the different types of paint as found upon the market, but the more important test is with paints representing types specially prepared for this work, and presented to the College by the Paint Manufacturers' Association of the United States. For this work they have prepared and furnished sixteen types, each in three shades, and we are indebted to the same association for financial aid for conducting the experiments. The National Lead Company have also taken a deep interest, furnishing the necessary white lead, and contributing freely to further this work. The North Dakota Agricultural College

is, therefore, now in a position to conduct a most comprehensive experimental test of paints.

I have thus briefly outlined the character of these experiments now in progress at the Experiment Station. In addition, however, to the foregoing test, at least six residences are to be painted; a large mill laboratory newly constructed, and the College Armory, in part to be repainted and in part newly painted.

On each residence eight paints are used, thus making a comparative test under identically the same conditions

for the different types of paint. At the same time that these tests are being made the chemical and physical properties are fully determined and recorded, also all of the season's climatic conditions and observed facts regarding the working qualities of the paints. I might say that it is further proposed to have an experimental paint mill installed at the College for the manufacture of paint and, where possible, we shall try to have our experimental tests confirmed in a manufacturing way, by some of the large paint manufacturers.

Be Sure of Your Paint Before Painting

Send for our booklet, "Pure Paint," and learn how to be sure of your paint before painting, and how to avoid the ready-mixed compounds of worthless paint imitations that crack, scale, spot and fade.

CARTER Strictly Pure White Lead

is free from all adulterants. Every atom is paint. Use it, and you will know what you are putting on, and save money on the cost per gallon, cost per yard covered, and cost per year of wear. Sold by reliable dealers everywhere. Can be mixed to any desired color.

Our booklet tells how to select paint for farm buildings, and shows six beautiful color schemes. Sent FREE. Address Dept. W

CARTER WHITE LEAD CO., Chicago, Ill.
Factories: Chicago—Omaha.



The highest quality and best paint for all Good painting.

Every drop honest value—every can full measure.

Satisfactory Results Guaranteed

We insure the life of our Paint.

BRADLEY & VROOMAN CO.,
PAINT MAKERS,
CHICAGO.

THE ONLY BARN PAINT

bearing a formula label showing its composition and conforming in every detail to the laws of North Dakota.

PITKIN'S TRIPPLE CROWN BARN PAINT IS GUARANTEED TO WEAR 5 YEARS



The greatest part of the cost of painting is the labor necessary for applying. Therefore it is certainly economy to buy the paint which will wear the longest and at the same time give satisfaction.

Pitkin's is that paint. Pitkin has been making paint for 40 years and has a reputation for integrity and reliability that is in itself a guarantee of the goods.

Be sure to buy the right paint; not the cheapest paint.
Send for a free sample.

Geo. W. Pitkin Co.,
Paint and Color Makers,
Benton Harbor, Mich.



Material, Machinery and Men---the three important factors in good paint making

The best paint makers in the world cannot make good paint from poor materials. The materials must be good to start with.

The Sherwin-Williams Co. make and control from their very source practically all important raw materials, and in this way are able to supervise every detail of manufacture and be sure that the ingredients they use are up to the highest standard in every respect. The machinery with which

SHERWIN-WILLIAMS PAINT, PREPARED (S.W.P.)

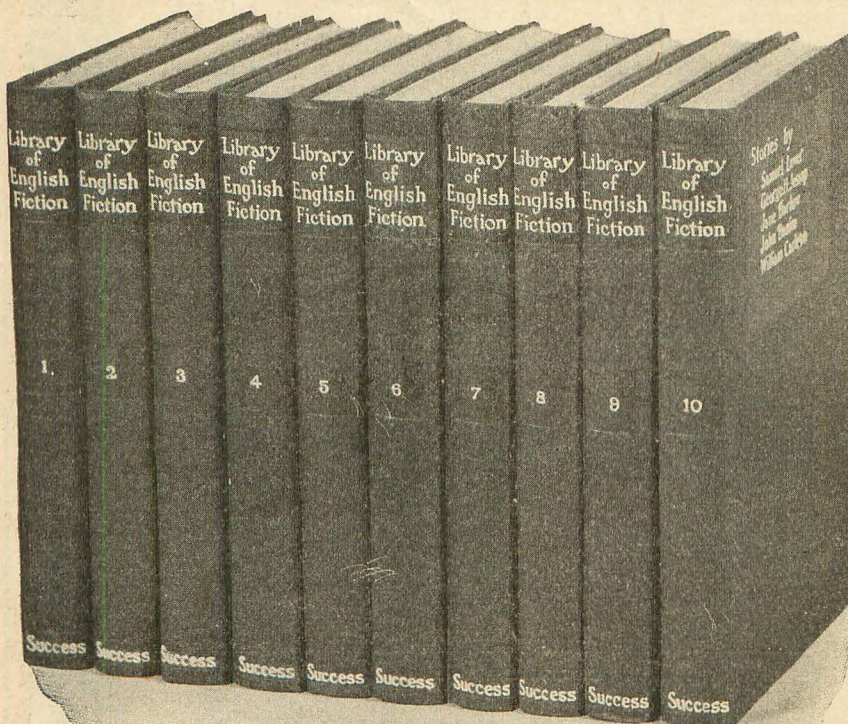
is ground and mixed is of our own design and manufacture. The more finely the paint pigments are divided by grinding and the more thoroughly they are mixed with the oil, the better results the paint will give. Grinding and mixing cannot possibly be so well done by hand or with inefficient machinery as with the powerful machines used in the manufacture of S. W. P.

The men who make S. W. P. have had life-long training in their work and have learned to give full consideration to all details, such as accuracy, cleanliness and uniformity. They have been "brought up" on the idea that quality is the most essential feature of our business, and that the paint that is sealed up in the cans holds all the reputation of The Sherwin-Williams Co. You can get S. W. P. from the best dealers everywhere.



THE SHERWIN-WILLIAMS CO.

LARGEST PAINT AND VARNISH MAKERS IN THE WORLD
 FACTORIES: CLEVELAND, CHICAGO, NEWARK, MONTREAL, LONDON, ENG.
 SALES OFFICES AND WAREHOUSES IN PRINCIPAL CITIES.



FARMERS ARE TIRED

of having the cheap trash in the form of so-called farm papers thrust upon them. The time is come when the chaff is being sent up thru the P. O. Department "straw-carrier," while the wheat is allowed a fair chance to nourish and yield a profit.

WHAT \$3 WILL DO

SUCCESS MAGAZINE, one of the best of the high-grade publications, together with this set of

TEN VOLUMES OF ENGLISH FICTION, (Or ten volumes of American Fiction) which will be sent with all express charges prepaid, and also

THE NORTH DAKOTA FARMER for Three Years, or One Year to each of three persons.

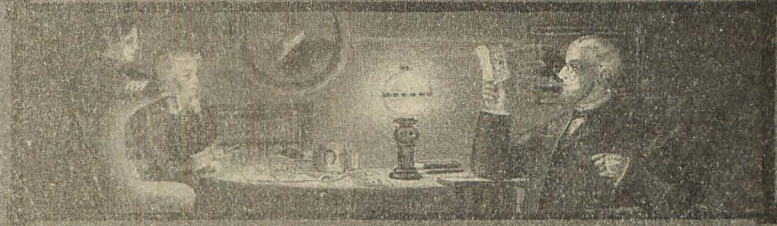
If you are a school director, here is your chance. ELEMENTARY AGRICULTURE has come to stay in our schools. Help push on the good work.

Address,
 NORTH DAKOTA FARMER,
 Lisbon, N. D.

When does my subscription to the North Dakota Farmer expire?

THE ANSWER MAY BE FOUND ON THE ADDRESS LABEL ATTACHED TO THIS COPY.

STORIES OF WAYS TO MAKE THE HOME BEAUTIFUL



THE HORSE SHOE BRAND

To produce the highest quality in paint, there must be but one incentive; the will to do it. If the question of profit or individual preference is allowed to influence or prejudice its composition, success in reaching perfection is balked.

Science can recognize nothing but truth. Intention may be honest and desire laudable but if either swerve from the fixed principle of law and fact the discovery of truth must wait for the unbiased mind to reveal it.

The **HORSE SHOE PAINT** is made of materials recognized and accepted by all authorities practical and scientific as the best known for paint making. There is nothing in it about which there is any question or dispute. It's a pure zinc, lead and linseed oil paint, with the necessary pure drier and tinting color. All standard, nothing experimental.

When all authorities are as fully agreed as they are on zinc, lead and linseed oil, that some other material is necessary to improve it, we will add that to its composition. Until then the **HORSE SHOE BRAND** will remain as it is, a composition of the standard paint materials, free from everything doubtful or experimental. That is a course equally safe for all parties.

Mound City Paint & Color Co.,

ST. LOUIS, U. S. A.

Norris B. Gregg, Pres.

Wm. H. Gregg Jr., Vice Pres.

E. H. Dyer, Sec'y

